H 34/smoking

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Memorandum

Date: August 1982

From: Chief, Research and Evaluation Staff
Health Education Division
Center for Health Promotion and Education

Subject: Administrative Reviews and Critique of the Preliminary Version of "A Program Evaluation Handbook for Health Education Programs in Smoking"

To: American Public Health Association Workshop Attendees
CDC-Workshop Attendees

The attached preliminary document is for your technical review and comment only. Questions and suggestions regarding this report should be addressed to me at the following address:

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(PRELIMINARY VERSION*)

A PROGRAM EVALUATION HANDBOOK

FOR

HEALTH EDUCATION PROGRAMS

IN

SMOKING

for the

CENTERS FOR DISEASE CONTROL
Center for Health Promotion and Education
Atlanta, Georgia 30333

by

IOX Assessment Associates
Culver City, California 90230

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* This handbook contains measures which have not yet been subjected to empirical verification. A subsequent project to validate the measures for use in health education programs is planned.

PREFACE

In recent years health educators have increasingly recognized the potential of systematic evaluation as a means to both appraise and improve their programs. For this potential to be realized, however, an effective mechanism for gathering relevant data is required. Until now, there have been instances where critical information about a program's effects has not been collected because of a lack of suitable measuring devices for gauging program effects. This handbook was prepared to rectify, at least in part, this deficiency in the evaluation of health education programs in smoking.

More specifically, in 1980 the United States Centers for Disease Control (CDC) initiated a project to prepare seven collections of measuring devices which could be used by health educators to evaluate their programs. The measures were to be assembled in handbooks which would serve as resources for those wishing to evaluate health education programs in the various fields.[1] The materials contained in the following pages constitute the handbook of evaluation measures for the field of smoking.

In essence, the project's architects hoped to provide health educators with a range of measurement devices that could serve as <u>possible</u> tools for the evaluation of a particular program. This "menu" of potentially relevant assessment instruments was expected to facilitate the assembly of evidence regarding a given program's effects.

This handbook is not intended to be prescriptive. Those involved in evaluating smoking programs should regard the handbook only as a resource, that is, a repository of assessment tools which <u>may</u> be of use. The extent to which the handbook is actually useful depends, in large part, on the extent to which there is a correspondence between the intended impact of a given health education program and the outcomes which are assessed by the measures in the handbook.

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[1] The seven handbooks focused on the following areas: alcohol and substance abuse, diabetes, exercise, immunization, nutrition, smoking, and stress management. Information regarding the availability of the handbooks is available from the Centers for Disease Control.

A Capsule History of the Handbook's Creation

The development of this handbook was conducted by an external contractor, selected competitively on the basis of responses to a CDC-issued request for proposals. The contractor was to collect and develop evaluation measures for critical behavioral, knowledge, skill, and affective outcomes in the area of smoking. A panel of experts was selected to guide the contractor in determining which outcomes were important enough to smoking health education programs to require assessment devices. Three members of the panel were subject matter specialists. These experts were selected on the basis of suggestions from prominent national associations with a primary mission in smoking. Nominations were screened to ensure the creation of a panel with a balanced view of the field. So, for example, at least one of the experts represented a national association and at least one possessed direct community level experience in administering local health education programs in smoking.

In addition to these three subject matter experts, a fourth member of the expert panel was a health education generalist. Nominations for the health educator were solicited from national health education associations. Two specialists in evaluation and testing were also members of the expert panel. Additional subject matter experts representing interested national associations were also invited to serve as panelists. The names and affiliations of the expert panelists in smoking are provided at the end of the Preface.

The expert panelists met for two days during mid-1981 in order to isolate the chief outcomes which health education programs in the field of smoking could be expected to promote. After intensive deliberations, preliminary statements reflecting such outcomes were isolated, then set in priority order by the subject matter and health education experts. The evaluation and test specialists did not participate in this setting of priorities.

The preliminary outcome statements selected by the panel were subsequently refined by the contractor's staff, then mailed to panelists as well as other interested individuals and organizations, all of whom rated the importance of each possible outcome statement. The prioritized list of outcomes that resulted was used to guide the selection and development of measures for this handbook. All newly-developed measures, along with the formal test specifications which were used to prepare them, were reviewed via mail by each panelist. In addition, many of the new measures were piloted on samples of approximately nine individuals. Feedback from these tryouts and the panelists' review was used to revise

the new instruments. All of the new measures were also systematically reviewed by members of the contractor's staff in an effort to eliminate any potential sex, race, religious, or socio-economic bias.

While the new measures were being developed, a comprehensive search was conducted to locate existing measures which might match the panel-identified outcomes. The content of all these measures was carefully reviewed to ascertain its match with one or more of the panel-identified outcomes. All existing measures which corresponded to an outcome statement were then reviewed to ensure that they possessed no major technical or psychometric flaws which rendered them unsuitable for program evaluation use. Wherever there was substantial duplication among two or more existing measures, the measure which possessed the strongest supporting psychometric data, or the measure that was clearest and easiest to use, was chosen. All the existing measures which passed both the content screening and the subsequent reviews are included in this handbook.

The Handbook's Contents

There are several sections in the handbook, beginning with this Preface, which is largely an introductory elaboration of the handbook's origin and contents. The handbook's major sections are described below.

Chapter One contains a review of the fundamentals of systematic evaluation as applied to the appraisal of health education programs. Because the handbook will be used by experienced evaluators as well as by health educators with less evaluation background, it is possible that Chapter One's account of program evaluation will be of more interest to some handbook users than to others. Individuals using this handbook can decide whether their conversance with the basics of program evaluation permits them to skim Chapter One or skip it entirely.

Chapter Two describes the nature of the measures included in the handbook. The four different categories of measures found in the handbook are explained, and the interrelationships among these measurement categories are described. The rationale behind the types of measures newly developed for the project is presented. The procedures employed by project staff in locating and screening existing measures are also described.

Chapter Three provides guidelines for using the measures in program evaluation. Included in this chapter are practical suggestions regarding such matters as the selection, administration, and scoring of the handbook's measures.

Chapter Four lists the outcomes identified by the expert panel. The outcomes are presented in their amplified form, and each one is annotated to indicate where in the handbook the newly-developed and/or previously existing measures for that outcome can be found.

In Chapter Five the new measures constructed specifically for this project are presented. All of these new assessment devices are criterion-referenced measures. To facilitate use of the measures, each is preceded by a descriptor page which supplies the title of the measure, the title of the outcome for which the measure was created, and the characteristics of the population with whom the measure is to be used. This descriptor page also presents a brief general description of the measure. It must be stressed that these new measures have not yet been subjected to empirical verification, hence should be regarded as assessment devices whose technical qualities have not yet been verified.

Chapter Six contains the existing measures which were identified as corresponding with panel-approved outcomes. Each measure is preceded by a descriptor page which includes the measure's title, its authors, the type of outcome assessed, and the title of the outcome statement to which the measure corresponds. In addition, a brief description of the measure is provided, along with a summary of relevant information regarding the measure.

To facilitate photocopying and reproduction of the measures in Chapters Five and Six, all descriptive and scoring information has been placed on separate pages. The measures themselves can be readily copied and reproduced by health educators. Handbook users have permission to use all the measures in this collection for health education program evaluation, without needing to seek further permission from any authors or agencies.

In Chapter Seven the test specifications for Chapter Five's new measures are presented. These specifications consist of the rules and content constraints used to generate all new measures for the project. Each set of specifications constitutes the most complete description of the measure for which it served as the blueprint. A complete understanding of Chapter Five's measures is possible only by reviewing Chapter Seven's specifications.

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An annotated evaluation bibliography is presented after Chapter Seven, to provide follow-up reading for handbook users who wish to deal at greater length with the topics developed in Chapters One through Three. The annotated descriptions should make it possible for readers to determine whether the cited reference is appropriate for their purposes.

The handbook is concluded with an Index of Measures. This index lists, by title, all of the program evaluation measures contained in this book.

Acknowledgment of Contributors

The following individuals served as expert panelists for this handbook:

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The project which resulted in the creation of this handbook was funded by the Centers for Disease Control in Atlanta, Georgia. The project was initiated by the Research and Evaluation Staff, Health Education Division, of the Center for Health Promotion and Education. Dr. Walter J. Gunn, chief of that group, conceptualized the project, set forth its specifications, and supplied technical guidance throughout the project's existence. The project was originally conceived during conversations between Dr. Gunn and Dr. Carol D'Onofrio of the University of California, Berkeley School of Public Health. Throughout the project, those serving as project officers were Dr. Gunn and Dr. Diane Orenstein of the Centers for Disease Control and Dr. Donald Iverson and Dr. Patricia Mullen of the Office of Health Information and Promotion, Office of the Assistant Secretary for Health, Department of Health and Human Services. The project has substantially benefited from the continuing technical counsel of its project officers.

The handbook itself was developed by the following members of the staff of IOX Assessment Associates: Eloise Appel, Phyllis Jacobson, Rebecca Jaramillo, Elaine Lindheim, Margaret Mulne, W. James Popham, Celia Rodrigo, John Ruggles, and Elanna Yalow. Robin Harte and Cecilia Marcelino prepared all of the handbook text. Numerous health educators also offered counsel regarding the handbook's measures and introductory materials. Without their expert assistance, development of this volume would have been impossible.

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CHAPTER ONE

PROGRAM EVALUATION CONSIDERATIONS FOR HEALTH EDUCATORS[1]

The development of strategies which might prove successful for program evaluation has received substantial attention in recent years. Many of the recommended approaches to program evaluation have been formally designated as evaluation "models," that is, systematic conceptualizations of the step-by-step manner in which evaluations should proceed. Some approaches emphasize the effects of a program. Others focus on the quality of a program's procedures. Still others primarily attend to the costs associated with a program. Because evaluators now have numerous evaluation approaches from which to choose, today's health educators can select those aspects from the various evaluation models which will prove most serviceable for a given evaluation assignment.

The purpose of this chapter, therefore, will not be to present a particular evaluation model, but rather to focus on considerations central to all evaluations. We evaluate programs in order to find out if they are working and how to make them work better. Sometimes a program evaluation is conducted by an individual not affiliated with the program itself--an individual formally designated as a program evaluator. Far more frequently, a program evaluation is carried out by the program personnel who are actually operating the program. In such instances these health educators simply change roles for a while, exchanging their program implementation responsibilities for program evaluation responsibilities. Thus, whenever the term "evaluator" is used

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[1] In this introductory chapter an attempt will be made to present a series of salient considerations related to the evaluation of health education programs. But, clearly, it is impossible in a single chapter to discuss all evaluation topics with adequate depth. Hence, a set of references for further reading has been provided. This evaluation bibliography, which has been annotated to provide a general description of each volume's contents, can be found on pages 216-223. Throughout the handbook's early chapters, the reader will be directed to various of these references for further information about the topics being discussed.

in these introductory chapters, it refers both to the evaluator specialist and to the program staff member serving as evaluator.

Focusing the Evaluation

Effective evaluations help people make better decisions about programs. Anyone setting out to evaluate a health education program, therefore, should be certain to focus the evaluation on the sorts of decisions that are likely to be at issue. This includes getting a clear idea about the purpose(s) of the evaluation as well as identifying the individual(s) or group(s) who will use the evaluation's results.

The nature of the program being evaluated makes a substantial difference in an evaluation's focus. Some health education programs are carried out chiefly to develop and refine the program itself. We can refer to these programs as experimental programs in the sense that they are programs of yet unproven effectiveness. In evaluation studies of experimental programs there is an attempt to isolate the most effective program or the most effective program components. Another type of health education program is a demonstration program, that is, a program in which proven approaches are offered in an effort to secure support or adoption from a larger clientele. Demonstration programs, then, are targeted toward two audiences, the program's participants and the individuals or groups whom the demonstration is supposed to convince. When evaluating demonstration programs, we often attempt to verify whether a program has been disseminated with fidelity to its original conception or, if not, why. Finally, there are service programs in which proven approaches are offered in an attempt to improve the health and well-being of designated target groups. In such programs evaluation often takes the form of monitoring. Two or more of these three types of health education programs can, of course, be provided in combination.[2]

Differences exist in the evaluation activities depending on the purpose of the evaluation, the type of health education program being evaluated, and the nature of the decision-makers for whom the evaluation is being conducted. Too many times program personnel avoid evaluation on the grounds that theirs is only a demonstration program and, hence, needs

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[2] For an extended consideration of these three types of programs, see Gunn, W. J. Evaluation: Proving and improving your programs. A paper presented at the Fifth International Conference on Health Education, London, September, 1979.

no systematic appraisal. Or, again, those carrying out a service program might fail to evaluate their efforts because, "after all, we are merely disseminating a proven methodology." But program evaluation is needed for all three kinds of health education programs. The issue is not whether, but how.

Objectives and evaluation. Health education programs come into existence in order to bring about worthwhile effects. Most health education programs, therefore, are organized more or less systematically around some form of program objectives. The more explicitly these objectives are formulated, the more useful they are in carrying out evaluations. Indeed, one consideration in conducting an evaluation is the extent to which a program's objectives have been achieved. It is for this reason that evaluators often work with program personnel in an effort to have those individuals create objectives which describe the desired post-program behaviors (including performance on measuring devices) of program participants.

Too often program designers describe their objectives in such lofty and loose language that it is next to impossible for evaluators, even after the program is over, to tell whether the objectives have been attained.

There is substantially more to program evaluation than merely discerning whether a program's goals have been achieved. For example, there may be program effects, both positive and negative, which although profound were not anticipated in the program's stated objectives. In addition, there is the quality of the objectives themselves. Perhaps the program's goals are truly trivial. A skillful evaluator can profitably work with program personnel to improve the nature of their aspirations. Clarified and more defensible objectives can be a boon to both program personnel and evaluators.

Summative and Formative Functions. Since the expressions "formative evaluation" and "summative evaluation" were introduced over a decade ago, considerable attention has been given to the virtues of each type of evaluation study. In the late sixties and early seventies, a good many evaluators were persuaded of the virtues of summative studies in gauging a program's overall effectiveness. To their distress, however, it often turned out that definitive judgments were difficult to achieve. Rarely did a summative evaluation study settle conclusively whether a given program was sufficiently meritorious to make a go/no-go decision on the basis

of that study alone. More often than not, a host of complicating elements proved far more influential in the nature of the final decision than the results of an evaluation study.

As a consequence, it became increasingly clear that, in many instances, formative evaluation studies might prove useful. Formative evaluation is not end-of-the-line evaluation. Rather, such evaluation is an ongoing endeavor as the program is designed, installed, and maintained. Whereas summative evaluation's mission is to provide a final judgment of a program's overall merit, formative evaluation's mission is, on a continuing basis, to bolster a program's quality. The effective formative evaluator functions less as an external judge and more as a collaborator, a member of the team whose task it is to monitor the program in order to improve its quality and the decisions regarding it.

These two evaluative roles are not mutually exclusive. An evaluator's main task is to collect information which is maximally useful in improving the quality of decisions made about programs. Evaluation should identify the areas in which a health education program is having an impact, as well as those in which it is not. Effective components can then be retained; ineffective components can be strengthened or dropped. A mechanism for the systematic collection of information regarding health education programs can provide a solid data base for the continuing refinement of such programs and for improvement in the general level of services provided.

Conducting Evaluation Studies

How can evaluations be conducted so as to achieve their maximum benefits? It is sometimes thought that program evaluations must include complicated and elaborate data-gathering designs in order to yield a decisive and compelling set of data. This is simply not the case. Program personnel and evaluators should strive to conduct their studies and gather data in such a way that the ambiguity of results can be kept to a minimum. That is, evaluations must attempt to determine whether a program works, what makes a program work, or what prevents it from working. Evaluation data-gathering designs serve as the means to this end by delimiting the procedures that will be used to explore the workings and impact of a program.

The conditions under which we gather data will permit us to make inferences about a program's overall impact on participants or, perhaps, the differential effectiveness of

the program's various components. To select optimal designs for their investigations, evaluators must have a broad knowledge of the available design alternatives and the strengths and weaknesses associated with each. Evaluators must also work closely with program staff to determine which decision options can actually be illuminated by evaluation studies. The most sensible evaluation study for a given context can then be planned.

Rights of Human Subjects.[3] Health education programs' are designed to improve individuals' health and well-being. When we evaluate those programs, therefore, we characteristically focus on the impact of the programs on human beings. Some evaluators, however, become so caught up with the importance of appraising a health education program that they overlook the rights of the individuals being evaluated.

Above all, the evaluator should be guided by a respect for human dignity, hence should not engage in evaluative activities which in any way demean an individual's rights. Prominent among the principles which should guide evaluators is that of informed consent. The principle of informed consent requires that an evaluator secure, in advance of the study, agreement of all participants in an investigation. This consent is obtained after the potential participants have learned about the nature of the investigation, at least insofar as their participation is involved. This principle properly reflects the evaluator's concern for human dignity, since it rules out the possibility of making individuals serve, unknowingly, as subjects in an evaluation.

A key tenet in most ethical codes regarding human subjects insists on the confidentiality of all participant data gathered as a consequence of an investigation. Because the evaluator is not concerned with an appraisal of individual learners but rather with the worth of health education programs, the principle of participant confidentiality usually poses no problems. Evaluators must be careful, however, to devise protective safeguards, such as anonymous completion of forms and careful handling of data, that ensure the confidentiality of the data.

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[3] For additional information about the rights of human subjects and the ethics of evaluation, see Annotated References Nos. 1, 21, and 30.

Internal and external validity.[4] Characteristically, an evaluation examines a program's effects in order to determine whether individuals have changed as a result of their participation in the program. The pivotal issue here is whether any observed changes in the status of participants can be attributed to the program. Could other factors such as participant maturation, familiarity with the measures used in the evaluation (testing), or external influences such as a mass media campaign (history), account for the observed changes? An ideal data-gathering design helps rule out viable explanations, other than the program, for measured effects. Such a design deals with the issue of internal validity and addresses the question of whether observed effects can be attributed, with confidence, to the program. Threats to internal validity weaken our ability to attribute the effects that were observed to the program and not other factors.

Another important issue is the external validity of evaluation studies. Can the findings from a specific evaluation be generalized to the next group of participants or to variations of the program (e.g., to a similar health education program in a different school or to the same program held during the following year?) Could we expect the program to have an impact in other settings or at other times? What would be the effects with different participants, modes of presentation, or program personnel? External validity focuses on the need to demonstrate that the observed program effects can be expected to occur under conditions other than the specific instance of the program being evaluated. With external validity, evaluations can serve as more than tributes to successful programs or postmortems for unsuccessful ones by providing useful information as program personnel look to the future.

It is important to distinguish between internal and external validity, for different information may be required to establish each one. A procedure that increases internal validity may weaken external validity. Experimental control, which enhances internal validity, must be weighed against feasibility and generalizability. Evaluators must try to balance the problems associated with threats to internal and external validity, by selecting a data-gathering design that best addresses the information needs of the program and allocating evaluation resources accordingly. These prior-

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[4] For additional information about internal and external validity issues, see Annotated References Nos. 6, 9, and 10.

ities must come from the context of the program itself, since there are instances in which an evaluator should stress one type of validity rather than the other. Emphases on internal or external validity will vary as a function of the program decisions to be made.

Design options.[5] The key to selecting an appropriate evaluation design is to pick the one that best deals with the needs of those involved with a program, such as the program's staff, participants, or funding agency. In some instances, health educators may be interested in the effects of the particular program that they are providing. "Will participants be able to stop smoking after attending this program?" In other instances, health educators may be trying to develop model programs that will subsequently be disseminated locally or even nationally. "Can we develop a program that will encourage individuals to refrain from smoking, whether they are teenagers in Duluth, working mothers in Tampa, or retired business executives in New Haven?" An evaluator would have to design very different studies in order to answer these fundamentally different questions. As indicated earlier, health educators must design their studies so that they serve the specific purposes of that evaluation. There is no such thing as a general-purpose evaluation.

An understanding of a few basic principles can help evaluators select designs well suited to their needs and, perhaps more importantly, determine the limitations of whatever design is implemented. No evaluation study will be perfect. Every study leaves some questions unanswered. Evaluators need to be clear regarding what they have learned about a program and the degree of certainty associated with their findings, then convey this information to other interested audiences.

To illustrate some of the major considerations in selecting data-gathering designs, consider a six-month health education program aimed at modifying Behavior X. If participants' status on Behavior X were measured at the close of the program, we could represent that situation schematically as follows:

Program ⟶ Measurement

If this were the design employed, what could you tell about the program's impact on participants' behaviors? Using such

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[5] For additional information about evaluation design options, see Annotated References Nos. 6, 9, and 17.

a design, how confident would you be that the participants reported behavior changes were attributable to the program?

It would be difficult to attribute definitively any change in behaviors to the health education program. The program, indeed, may have been totally ineffectual, and participants' post-program behaviors might be identical to those they possessed before the program. The measurement process might be detecting behavioral patterns that participants brought to the program, not those that were affected by the program. Because we have no measure of behaviors prior to the program, we can't distinguish between preexisting behaviors and program effects. Hence, with this data-gathering design, it may be impossible to discern the influence of the program.

But even with such a basic data-gathering design it may be possible to secure meaningful program evaluation data. Suppose, for example, that a health education program is promoting a knowledge outcome so advanced that you expect participants will not be familiar with its content. In that setting one could assume that any post-program knowledge is attributable to the program's impact, because participants would probably not know the information without the program. It might well not be worth the resources necessary to demonstrate conclusively that participants began the program unfamiliar with the outcome's content.

These examples illustrate the chief mission of data-gathering designs, namely, to rule out plausible rival hypotheses, other than the program's impact, that might account for the post-program status of participants. If there is reason to believe that participants' pre-program status may account for their post-program status, then a data-gathering design should be selected which permits the evaluator to rule out that rival hypothesis.

Now suppose that, in order to avoid the major shortcoming of the previous design, we measure participants' behavior both before and after a health education program. We could represent that design as follows:

Measurement ⟶ Program ⟶ Measurement

Let's assume that the result was a substantial shift toward more desirable behaviors between the initial and the final measurement. Could this change in behaviors be ascribed to the program? We cannot be sure. There are many

other factors that may have led to the observed change in behaviors. For example, there may have been a significant event, an event totally unrelated to the program, which influenced participants' behaviors. If the program were designed for children, it may have been that the participants matured during the time frame of program. Thus it may have been increased maturity rather than the program which caused the altered behaviors. The program itself may have contributed nothing to the shift of behaviors.

But, as was true with the earlier design, if the rival plausible hypotheses for explaining post-test results are accounted for satisfactorily by this data-gathering design, then it is sufficient for the task at hand. In fact, many formative evaluations feature such simple yet serviceable pretest-to-posttest designs involving only one group of participants.[6]

We can eliminate some of the more common rival explanatory hypotheses by using a data-gathering design in which we employ a comparison or control group. The use of a control group (untreated individuals) or comparison group (individuals receiving a different program) can be illustrated as follows:

Group 1: Measurement ⟶ Program ⟶ Measurement

Group 2: Measurement ⟶ Measurement

In this design, as we see, a control group (Group 2) is assessed before and after the program, but this group never receives the program itself. Under such circumstances we can be more confident that if the program participants' pre-to-post behaviors shift, and the control group's pre-to-post behaviors remain the same, the program caused the shift.

There are, however, some disadvantages to this design. It may be that the initial measurement was reactive. A reactive measurement is one which by itself, or in concert with the program, influences participants' behavior. Attitude inventories and self-report questionnaires about beha-

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[6] Note that this design requires measurement before as well as after a program. This points to a commonly accepted but often overlooked principle of effective evaluation. Evaluation is most effective when it is initiated at the beginning of a program, often prior to the program's formal inception. If evaluators are not called in until the end of a program, they sometimes serve as little more than test proctors.

vioral practices are often reactive. Suppose that in this case the pre-program instrument alerted participants to what was to be measured, hence influenced their performance on the second measurement. In addition, measurement is expensive, and measuring control groups can be a relative waste of valuable evaluation resources. Time and money can often be better spent studying the program being evaluated rather than studying a no-treatment control group of little interest. (The merits of comparative designs will be described later.) Health educators should not ritualistically employ control groups in their designs if the question at issue can be answered without their use.

There are situations in which health educators may wish to appraise the effects of their programs on the basis of routinely administered measurements, such as periodically administered questionnaires or the kinds of archival data one often finds recorded in health agencies. For instance, suppose we were evaluating a "parent health awareness" program and were interested in the number of checkups from physicians sought by parents of infants. Assuming that such information is available in the county health department's records, the evaluator may wish to employ a time-series design. In a time-series design we measure at periodic intervals both before and after the program. By observing the pattern of measurements prior to and following the program we can discern if the program had any effect.

To clarify, Figure 1.1 presents three illustrative time-series data patterns of six periodic measurements (M_1 through

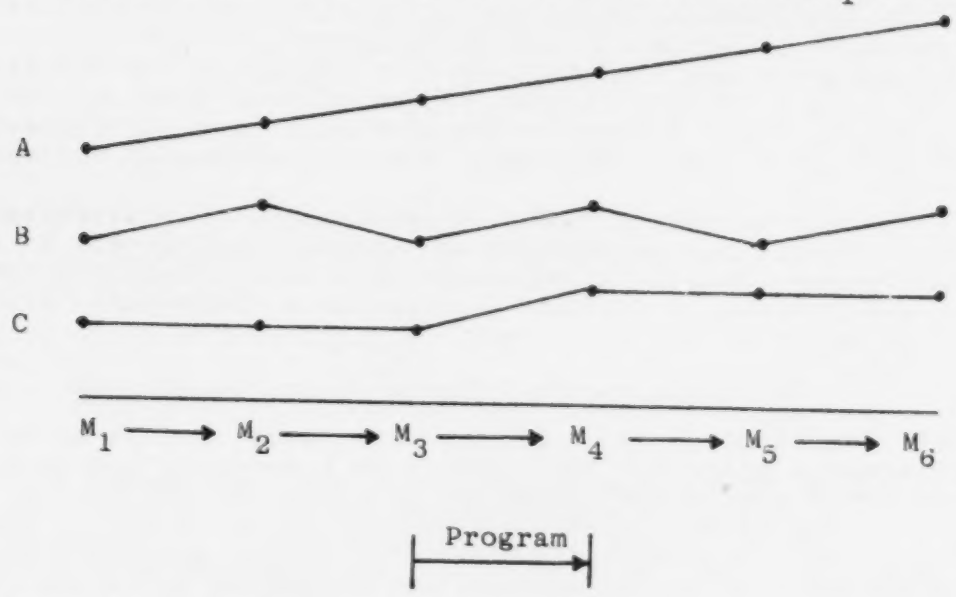

Figure 1.1. Three data patterns from a time-series design.

M_2) taken every two months over a 10-month period. A two-month health education program is offered midway in the time series, that is, immediately following Measurement Number Three (M_3) and just before Measurement Number Four (M_4). Note that the difference between M_3 and M_4 (that is, immediately before and after the program) is identical in all three data patterns. Yet in data patterns A and B we would be reluctant to attribute the M_3 to M_4 growth to the program's effects. In pattern A there are consistent increments over the entire 10-month period, not just the period associated with the program. In pattern B the increments and decrements fluctuate too much. Only in data pattern C could we make the attribution of program effects with some confidence. Although the data analysis procedures associated with time-series designs are fairly complicated, it is often possible to discern program effects merely from inspections of patterns in plotted data such as those shown in Figure 1.1.

In using time-series designs to evaluate programs, health educators must be particularly attentive to the possible contaminating impact of an event, external to the program, that may have influenced the observed data patterns. For instance, referring back to Figure 1.1, suppose that a widely publicized national outbreak of influenza had occurred at the same time that the "parent health awareness" program was being offered. Suppose also that parents was being urged by the media to seek checkups for their infants. Then the growth pattern observed in pattern C might be more associated with that event's effects than with the health education program's effects.

A time-series design, though often used with archival data, can be employed with any sort of periodically gathered data such as routinely administered attitude inventories. A time-series design can be applied to evaluate one program at a time or to evaluate several programs simultaneously. For example, suppose the three data patterns seen in Figure 1.1 were data associated with simultaneously offered programs. In this instance the program yielding data pattern C would be the only one resulting in detectable effects.

In utilizing time series designs one must be certain to have a reasonable number of measurement opportunities over an extended time period. That is, one would not want to employ such a design unless clear data patterns were possible to discern.

Randomization[7]

In the designs we have discussed thus far, the focus has been on evaluating one program with one group of participants. This may be the situation for many health educators who are only interested in considering the specific program they are providing. But suppose, as we described earlier, you are interested in the general effectiveness of a program which will serve as a model to be implemented in a variety of settings, with different types of participants. How would you design such a study?

One technique that can prove useful in such settings is randomization. We select or assign things randomly when we do so in a non-systematic manner, such as by using a table of random numbers (found in most statistics texts). When the participants taking part in the program to be evaluated have been selected at random from a larger population of potential participants, then we can be reasonably confident that those involved in the evaluation will be representative of that larger population. There is less likelihood that the participants being studied in the evaluation are atypical, hence inappropriate subjects to include in the study.

This sort of randomized selection of subjects is particularly important when we wish to generalize from the results of our study to a larger population. This procedure may also be useful when there are more applicants than vacancies for a program or when not all potential clients can be served.

Another use of randomization arises when we determine which of several programs individuals are to receive. If we want to compare the effects of different programs, then we want to be as equivalent as possible. To this end we can employ a randomized assignment procedure whereby we randomly place individuals in the programs to be compared.

The two procedures of randomized selection and randomized assignment are illustrated in Figure 1.2. Note that we randomly select participants for programs from the pool of potential participants, then randomly assign those individuals selected to either Program A or Program B.

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[7] For additional information about randomization, see Annotated References Nos. 6 and 19.

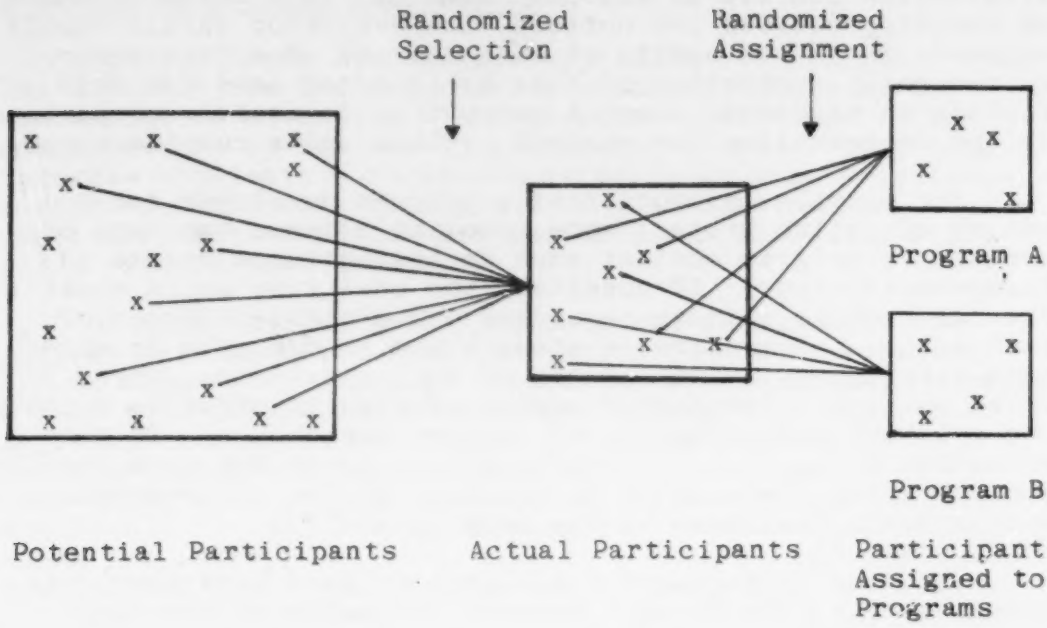

Figure 1.2. Randomized selection of participants from pool of potential participants and randomized assignment of participants to programs.

In actual practice, of course, program personnel often do not have the luxury of constituting groups via randomized selection or assignment, and there are in fact situations where program personnel would not want to use such procedures. As a consequence, we are frequently obliged to use evaluation designs that can help disentangle program effects from pre-existing differences either between participants in different programs or between participants and non-participants in the same program. Program evaluators should become conversant with such comparative designs and the settings in which they should be used, in order to select a design that will be most effective in forestalling the likelihood that factors other than the program itself accounted for participants' post-program status. Design selection must always be tempered by practical constraints such as available financial resources and the acceptability to program sponsors and participants of randomization techniques.

Comparative designs. The use of comparative designs also can prove helpful in the effort to come up with meaningful data. Comparative designs, in fact, arise because of the basic function of evaluators, namely, to aid decision-makers. Decision-makers ordinarily make selections among

alternative courses of action. Ideally, if a decision-maker is choosing between two options, the evaluator should supply evidence as to the merits of each option. For this reason, in designing evaluation studies it is often less sensible to include an untreated control group than to include comparison groups representing the various options under consideration.

For example, suppose that a program developer for a health education project were choosing between two ways of presenting program content such as (1) lectures versus (2) independent study. If possible, the evaluator would consult the research literature regarding the probable virtues of each option. Thereafter a study could be designed in which both strategies, or variations of both strategies, were tried out for a reasonable period of time in order to compare the relative effectiveness of various approaches. In this situation there would be little reason to employ an untreated control group, because it is unlikely that a no-treatment option would be chosen by the program staff.

The data-gathering designs treated here have been relatively simple. There are, however, a number of far more complex designs than we have considered. Inexperienced program evaluators sometimes become so entranced with complicated data-gathering designs that they compulsively apply them whenever carrying out an evaluation study. But evaluators do not need to employ excessively complicated designs. There are innumerable instances when simple data-gathering designs are sufficient.

This is particularly true in formative studies when evaluators are looking for rapid-turnaround data to guide program personnel in making upcoming program decisions. In such settings the evaluator needs to assemble <u>timely</u> decision-relevant information. The use of complex data-gathering designs may, in such circumstances, represent a squandering of evaluation resources. Only when complex designs are needed to eradicate threats to internal or external validity should they be adopted.

Program evaluators frequently also are so concerned about detecting the effects of programs that they fail to consider the costs needed for the programs to produce those effects. Yet decision-makers need guidance regarding not only the results they can expect from a program, but also the financial resources required to achieve those results. For this reason program evaluators should consider the relative costs of programs. To illustrate, how much does it cost Program <u>A</u> to produce a given result in relationship to how much it costs Program <u>B</u> to produce comparable results? Judgments about a program's impact in the absence of considerations about its costs are potentially superficial.

Criterion-Referenced Measurement[8]

Although there are various approaches to program evaluation and each has its own special emphases, there is one common feature of nearly all evaluation approaches. That common feature is the use of systematic evidence regarding a program's effects. To secure evidence of program effects, we characteristically employ measurement instruments. But some instruments are far more suitable for assessing a program's effects than others.

For more than a decade, educational measurement specialists have directed their attention toward an emerging form of assessment known as criterion-referenced measurement. Whereas norm-referenced measurement attempts to ascertain examinees' status in relationship to other examinees, criterion-referenced measurement attempts to ascertain examinees' status in relationship to a clearly defined set of behaviors. In fact, it is because the performances of examinees are interpreted according to a clearly defined domain of criterion behaviors that we say a measure is "referenced" to those criterion behaviors, hence classified as a criterion-referenced measure.

The essence of a criterion-referenced instrument is the clarity with which it describes that which is being measured. Because norm-referenced instruments are relative measures, emphasizing relative comparisons among examinees, they often do not provide a clear description of exactly what it is they are assessing. In contrast, because criterion-referenced instruments are absolute measures, designed to determine exactly what it is that the examinees can or cannot do, independent of the performance of other examinees, they should provide an unequivocal description of what they are measuring.

It is this clarity regarding the attributes that they assess that renders criterion-referenced measures ideal for program evaluation. Consistent with the spirit of providing useful information for decision-makers, criterion-referenced instruments describe, with precision, the nature of what is being measured. Hence, when criterion-referenced measures are used in a program evaluation, decision-makers can readily interpret the evidence being supplied.

The best way to describe what a particular criterion-referenced instrument measures is via the test specifications which are developed to generate the items on that measure.

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[8] For additional information about the nature and development of criterion-referenced measures, see References Nos. 4, 18, and 27.

Test specifications identify the particular rules and content limits used in constructing a measure. The test specifications operationalize the attributes which are being assessed by delimiting the eligible content and format of the measure.

As with any assessment strategy, there are varying degrees of quality in criterion-referenced measures. Not every instrument described as "criterion-referenced" truly deserves that label. Evaluators of health education programs, therefore, should become knowledgeable regarding the characteristics of high quality criterion-referenced measures. Several dimensions of a properly constructed criterion-referenced instrument are described below.

Clarified descriptions. The single most important element of a properly constructed criterion-referenced instrument is that it adequately describes the attributes it claims to measure. That description, contained in the test specifications, may take a variety of forms. Irrespective of the particular scheme employed, when one reads the descriptive information associated with a criterion-referenced instrument, it must be possible to discern unambiguously what is being measured. By inspecting the test specifications in Chapter Seven the reader can get an idea of the level of descriptive rigor required by criterion-referenced tests.

A manageable number of attributes. Historically, many measures have attempted to cover vast arrays of content. The net effect of this broad coverage has often been that those attempting to use the results from such instruments become overwhelmed by the profusion of discrete attributes being assessed. A properly constructed criterion-referenced instrument will focus on a limited number of dimensions. As a consequence, program personnel can direct their efforts toward those dimensions and evaluators can describe program effects along those dimensions. A criterion-referenced instrument that attempts to measure 10 or 20 discrete outcomes, for example, would likely prove less useful to program personnel and evaluators than an instrument which measures only one significant attribute. In some instances, particularly for diagnostic purposes, it may be helpful to design an instrument that assesses the major subdimensions of a more general attribute. Even in such cases, however, the guiding rule should be to employ only a manageable number of categories.

An adequate number of items per measured attribute. In order for a measure to yield adequate information about examinees' status regarding a given attribute, it is useful to provide multiple instances for examinees to display that attribute. Hence, criterion-referenced measures should pro-

vide a reasonable number of test items for the attributes that they measure. It is probably insufficient to attempt to measure a cognitive or affective attribute with one or two test items only. In some cases, a handful of test items per measured attribute or its subdimensions can aid the evaluator in gaining rough estimates of certain program effects. But, generally speaking, at least five to ten items per attribute typically constitute a minimum for measuring significant knowledge, skill, and affective outcomes in the health field.

Reliability.[9] Criterion-referenced instruments, just as norm-referenced instruments, must measure whatever they are measuring with consistency. The consistency with which an instrument measures is known as its reliability. To illustrate, suppose a 30-question knowledge test is administered on a given day, then re-administered to the same examinees five days later, with no intervening instruction. If the test is reliable, we would expect examinees to receive essentially the same scores on both testing occasions. If the test, when re-administered, yields substantially different examinee scores, we know that the test is not measuring with consistency, forcing us to conclude that it is unreliable.

There are several different kinds of reliability indices which can be calculated to reflect the consistency with which a given instrument measures, for example, test-retest or equivalent forms reliability. The kind of reliability data needed to appraise a measure for possible use in an evaluation study should be in accord with the way the measure will be used in the study. If a measure is to be used on a test-retest basis in an evaluation, then information about that type of reliability is germane.

All reliability coefficients range from 0 to 1.0, with coefficients of .80 or higher indicating highly reliable measures. Although space limitations preclude a more complete discussion of reliability, evaluators need to become conversant with this key attribute of properly constructed tests. At this point, it must suffice to alert program evaluators to the importance of securing evidence regarding the reliability of any measure to be used in an evaluation study.

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[9] For additional information about determining the reliability of measuring instruments, see Annotated References Nos. 2, 15, and 27.

Validity.[10] An imperative attribute of a properly constructed measure is that it be valid. An instrument is valid if it measures what it purports to measure. To illustrate, in the health field we often use self-report measures as a way of finding out about individuals' "real life" behaviors. If our self-report inventories are valid, then those measures will secure responses which are accurate indicators of the way that respondents actually behave. To the extent that responses on the self-report measures do not coincide with respondents' actual behaviors, then the measures are invalid.

There are several varieties of validity studies, each yielding somewhat different but conceptually related sorts of evidence about a measure. For example, one approach to validity arises when we use self-report measures as proxies for physiologic measures, such as when we use self-report questionnaires to elicit an account of participants' health behaviors, then attempt to correlate the questionnaire responses with the results of physiologic tests that reveal something about people's actual behavior, e.g., blood tests indicative of smoking (such as measures of serum thiocyanate and expired carbon monoxide). If the questionnaire data do, in fact, correlate substantially with the physiologic measures, then the questionnaire is, at least to some extent, validated.

Another approach to validity arises when we use measures as predictors of some subsequent criterion behavior, such as when we try to use responses to an affective inventory gauging one's intention to engage in a particular health behavior as a predictor of individuals' later health behaviors. If the affective measure does, in fact, correlate substantially with subsequent observations of the health behavior, then evidence of the measure's validity has been obtained.

Absence of bias.[11] In the past decade or two we have become sensitized to the distressing truth that many educational assessment devices contain items which are biased against particular subgroups such as ethnic minorities and women. An example of a biased test item would be a knowledge question which, because of peculiarities in its content or its wording, is more difficult for lower-income examinees to understand and answer correctly. Test items which use

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[10] For additional information about determining the validity of measuring instruments, see Annotated References Nos. 2, 15, and 27.

[11] For additional information about methods for avoiding test bias, see Annotated References Nos. 5 and 25.

content and terminology apt to be known only by the affluent would certainly be biased against the less economically advantaged.

Other sorts of bias which can adversely influence examinees' performances arise when test items are offensive to particular groups of individuals. For example, if test items include content that is seen to be derisive to women or to members of particular ethnic groups, then examinees from those groups are not apt to perform at their best on such items because agitation over the offensive content may interfere with their responses to the items.

A properly developed measure will pay adequate heed to the avoidance of biased items. There are now available both judgmental and empirical techniques for detecting the presence of biased items in measures. One or both approaches should be used to determine the degree of bias in criterion-referenced test items.

In reviewing the various dimensions of a properly constructed criterion-referenced measure, it is important to note that any given instrument may not possess all these qualities. Often one must choose among measures which embody some but not all of these elements. The important point is that merely because a measure is labeled as criterion-referenced does not indicate that it is of sufficient quality to be used with satisfaction in evaluating a health education program. Further scrutiny of the measure's quality is mandatory.

Sampling Considerations for Data Collection[12]

The data-gathering requirements of evaluation can, if evaluators are not attentive, become a disruptive and burdensome intrusion into ongoing programs. Accordingly, skillful evaluators should restrict their data-gathering forays to the least intrusive form possible.

One way to minimize an evaluation's intrusiveness is through sampling. Although most people are familiar with the form of sampling that involves selecting some individuals from larger populations of individuals, it is also possible to sample items when administering program evaluation measures.[13]

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[12] For additional information about sampling procedures, see Annotated References Nos. 7 and 8.

[13] A measure, such as the criterion-referenced measures found in Chapter Five, generally consists of a group of items, such as questions on a test or statements on an attitude inventory.

To estimate how a large group of people would respond on a particular measure, it is not necessary to administer that instrument to all the individuals in the group. Instead, we can sample individuals from the group by selecting either a simple random sample or a random sample stratified on the basis of program-relevant factors such as age, sex, and socioeconomic status. Assuming that the sample is correctly drawn, we can estimate the status of the total group based on the responses of this sample.

In the version of sampling described above, we select representative samples of people to represent a larger population. Suppose, for example, that an evaluator has a measure that is to be used to determine program effects. Assuming a reasonably large number of program participants, say 50 or so, we could randomly administer the measure to one half the participants only. In essence, this approach allows us to infer how the total group of participants would score on the measure although only half of the participants completed it. We could thus estimate how the total group of participants would have responded, yet halve the amount of participant time required for data-gathering.

In a similar sampling procedure, we could administer two or more measures at once. Suppose that two measures, Inventory X and Inventory Y, are to be given to program participants. We can randomly assign one half of the participants to one measure and one half to the other. While each participant needs to respond to one measure only, we can still derive a defensible estimate of how all the participants would have responded to both instruments.

In addition to sampling persons, as in the previous examples, it is also possible to sample items so that different sets of items are randomly selected to be administered to different persons. In such an approach we give each program participant only a sample of the items for which we want to obtain evaluation data. For example, suppose a program evaluator wishes to administer a 40-item test. Given, say, 60 participants in the program, the evaluator could divide the test into four sets of 10 items each and administer each set of items to 15 participants. By having the four groups of 15 participants each complete a different set of 10 items, the total group's performance can be estimated. This approach allows the data-gathering to be carried out in one-fourth the time that it would have taken to administer the total 40-item test to all participants.

Given the relatively small numbers of participants in some health education programs, is it really appropriate to sample either persons or items? How large must groups be before sampling procedures can be sensibly used? Although

an unequivocal answer to this question would be desirable, such a definitive answer does not exist. Some texts on sampling do provide rules of thumb for estimating the size of samples needed for detecting group differences in relationship to the magnitude of differences sought and the nature of the groups being sampled. At best though, these are rough estimates. It is important to recognize that the task of identifying a sufficiently large sample is more difficult than usually thought.

Intuitively we may recognize that when we start with a very small group of program participants, the use of sampling is risky. For instance, if there were only 15 participants in a program, few health educators would try to split these participants into three groups of five each for purposes of taking different tests. Even though each group represents one-third of the total population, there is too much likelihood that a sample of five individuals does not properly represent the total group.

The variability of participants' anticipated performances on the measures is the primary influence on the sample size necessary. The following example illustrate this principle. If a man's socks were all stored in a drawer, yet there were only black and brown pairs, he wouldn't need to draw out too many pairs until he had a reasonably good idea of the characteristics of the total population of socks in his drawer. But suppose he had socks in 10 different colors. Then he would most likely have to take out many more pairs until he could reach an accurate estimate of the colors of socks in the drawer. In much the same way, if it is expected that participants' scores on a test will be relatively homogenous, then a smaller number of respondents will be needed than if participants' scores are expected to be widely varied.

In considering any of these sampling procedures, it should be noted that the evaluator is essentially focusing on a group of participants <u>in the aggregate</u>. Because evaluations are typically concerned with the effects of programs on groups of participants, sampling procedures are usually appropriate. If, however, program personnel need individual data on all examinees on all measures, then sampling is not appropriate.

<u>When to Administer Measures</u>

Decisions regarding when to administer the measures depend on the data-gathering design selected. Conceivably, there are five time periods during which it may be useful to obtain information on participants, and there may be

reasons for repeated measurement during some of these periods. These time periods are depicted in Figure 1.3.

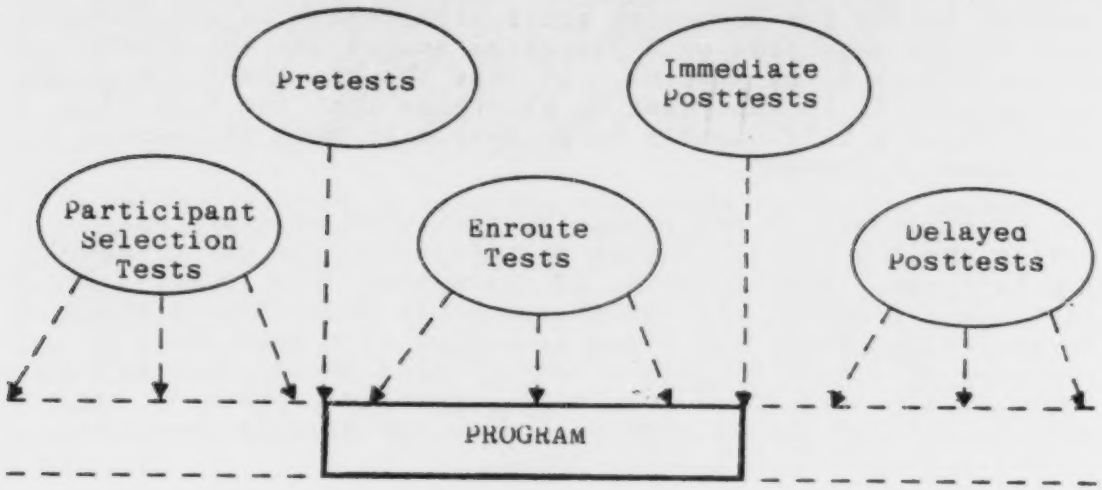

Figure 1.3 Possible measurement times in program evaluation studies.

The first point at which one might choose to obtain information would be prior to the selection of participants. In some health education programs anyone who wants to attend the program is admitted. In other programs there may be more applicants than program openings. Or perhaps there are multiple variations of a program, and different participants must be assigned to different variations. In these latter cases it may be useful to have information to help in the selection of participants. One may want to select as participants those individuals most in need of the program, or those with the most (or the least) perceived ability to attain the behavioral change sought in the program. In any event, information at this juncture may help the selection process become more effective than it might otherwise be.

Often it is useful to have information about participants immediately prior to their starting the program. Such data, often referred to as pretest data, may be used to identify participant weaknesses so that instruction can be targeted directly to those areas rather than emphasizing things that participants already know. Such data may also be used as a baseline, in conjunction with data collected at the end of a program, to determine the impact of the program. If data have already been collected on participants at the selection stage, it might be unnecessary to re-administer measures unless it has been a long time since the initial

administration, or unless there are reasons to expect a change in participants' performance.

Measures can also be administered during a program to secure a current reading on the status of participants. Such en route data can be used to redirect program resources during the program itself. One or more en route measurements can provide program personnel with ongoing status checks on participants' progress. Such data may be even more useful than data collected at the end of a program, for it provides information while there is still time to act on it.

Immediate posttest data are data collected directly following the program. Such data may be compared to pretest data in order to provide an estimate of the changes in participants following participation in the program. Participants' posttest performances can also be contrasted with scores from participants in other programs. Such data may also be used by themselves as a measure of the absolute status of participants.

Delayed posttest or follow-up data, e.g., data collected one year after a program's conclusion, are often equally if not more important than immediate posttest data in evaluating a program. Far too frequently data collection efforts are limited to immediate outcomes, when measurement is most convenient. Ultimately, however, program personnel are more interested in effecting long-term behavioral, affective, or cognitive changes. It is sometimes difficult to infer such long-term changes on the basis of information gathered solely at the end of a program. Hence, some follow-up measurement, perhaps repeated, is usually warranted.

Clearly, it is not sensible to administer all measures at all time periods. Evaluators, in collaboration with program personnel and other interested parties, need to select an evaluation design that focuses on the most appropriate times for gathering data. Just as one wishes to avoid administering an overwhelming number of different measures, one also needs to avoid an overwhelming number of administrations. In some situations it may be useful to administer certain measures on a continuing basis (e.g., a benavioral measure), while others might be administered far less frequently. Decisions about when to administer what sorts of measures should be guided by common sense, attentiveness to participants' rights and feelings, and the efficient use of resources.

Data Analysis[14]

A frequent question in evaluation is whether the results of the evaluation are statistically significant. Could observed effects of the program have occurred merely because of the particular sample used in the study? Are the differences so small that they might have occurred simply by chance? Statistical tests are used to answer these questions, and in order to do so these tests make certain assumptions about the data being analyzed.

To illustrate the sorts of assumptions that statisticians make about the data they analyze, we can consider levels of measurement scales. Statisticians draw distinctions between various levels of measurement, that is, data gathered from nominal, ordinal, interval, and ratio scales. Nominal scales classify information into categories without any implied order. For instance, when we categorize individuals into current smokers, former smokers, and nonsmokers, this is a nominal scale. Ordinal scales rank data in order, such as when we might rank a number of individuals according to their overall healthiness. An interval scale is one which assumes that there are equal intervals between equidistant points on a scale. To illustrate, a 10-point difference between scores of 43 and 53 on a 100-item test about the consequences of smoking would be considered identical to a 10-point difference between scores of 67 and 77. A ratio scale is an interval scale for which a zero point exists, such as a weight or height scale, in which there is a true zero.

When we select statistical techniques, it is important to match the statistical test with the type of data being analyzed. For example, in analyzing nominal data one must use statistical techniques specifically designed for such situations. Chi square, for instance, is one of several frequently employed nonparametric techniques for analyzing nominal data. Other nonparametric techniques are used to analyze ordinal data. A chi square test can be used to compare the actual frequencies in two or more nominal categories (such as smokers versus nonsmokers) with the frequencies which might be expected by mere chance. Chi square, however, would not be a wise choice for analysis of ordinal or interval data because nonparametric tests fail to use all of the available information, hence are typically less powerful than more appropriate alternatives. Thus, one must be certain that the assumptions associated with particular statistical techniques have been satisfied.

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[14] For additional information about data analysis, see Annotated References Nos. 13, 19, 28, 33 and 35.

The following statistical procedures are ones that are used primarily with interval and ratio data, that is, data which assume equal intervals between points on the scale. Such procedures are known as parametric tests. Cognitive tests are almost always assumed to be interval scales. In addition, attitude scales, although not necessary interval scales, are often analyzed using parametric procedures under the assumptions that the points on the scale reflect equal increments of the characteristic, and that the analyses are only slightly distorted if this assumption is violated. Thus, knowledge, skill, and affective measures are frequently analyzed using the following procedures.

One of the most basic parametric procedures used is a t test, which is used to test the significance of the difference between two independent means. (Recall that a mean is the arithmetic average of a group of scores, computed by summing all the scores in a group, then dividing this total by the number of scores in the group.) Suppose, for example, that an evaluation were conducted to compare the effectiveness of two health education programs, and that at the conclusion of each program a knowledge measure were administered to a sample of participants. A t test could be used to compare the mean posttest scores of those two programs to determine if observed differences were statistically significant. If there were three or more programs being compared in this way, an analysis of variance (ANOVA) would be used.

Two other techniques, gain scores and analysis of covariance (ANCOVA), are frequently used (and, unfortunately, frequently misused) when both pre-program and posttest data are available for participants in one or more programs. Both techniques use pre-program information in an attempt to compensate for initial group differences between participants in different programs. So, for example, if an evaluator were interested in determining the degree of attitudinal or cognitive change in participants as a result of a program, the evaluator might compute a gain score (posttest score minus pretest score) as a measure of change. However, dangers associated with the use of gain scores are well documented, and such scores should not be used without considering the ways in which they may be misleading.

ANCOVA is frequently used when an evaluator wishes to compare the mean differences between two or more programs on a posttest measure (as in ANOVA), but recognizes that there may have been preexisting differences among the groups, as identified by a difference on mean pretest scores or demographic differences among groups. ANCOVA compares posttest means after an adjustment to the posttest scores has been made for these preexisting differences. Unfortu-

nately, however, if these differences are systematic and not a function of random differences among groups, ANCOVA does not provide an adequate method for equating the groups. Hence, evaluators and program personnel need to use caution when conducting such an analysis or interpreting results from it.[15]

As one becomes more conversant with the purposes sought by various statistical analysis procedures, it is possible to consider those purposes in relationship to the levels of measurement (e.g., ordinal) required of each procedure so that a routine guide to the selection of statistical procedures is available. For example, the three general purposes of statistical analysis are description, association (correlation), and comparison (difference-testing). We can cross those purposes with the three most common types of data and secure a 3 x 3 table in which, for example, to test the differences between two sets of ordinal data we would use a nonparametric Mann-Whitney test. Such tables are found in numerous statistics texts, including several of those cited in the handbook's annotated references.

Another choice-point faced in the analysis of data concerns the appropriate unit of analysis. Most people are familiar with analysis procedures in which the individual participant is the unit of analysis. Yet, there are instances in which the unit of analysis treated statistically should not be the individual participant but, rather, a group of participants. The guiding principle in selecting an appropriate unit of analysis is that one should choose the smallest independent unit to analyze. To illustrate, suppose a health education program involved the use of peer support discussion groups of 10-12 people each in order to encourage adoption of a given health-related behavior. Because the individuals in each group would surely interact during discussions, hence not be independent, one should consider each group's average score to be the unit to be analyzed. Again, the focus must always be on the smallest independent unit capable of being analyzed.

Statistical tests only help us detect statistical significance; they do not help us determine whether an observed difference has practical significance. A small

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[15] There are numerous statistical computer packages and programmable calculators that conduct these and many other statistical procedures for users. To optimize the ease and efficiency of data analysis efforts, evaluators should anticipate likely procedures for analyzing their data and collect data in the manner most compatible with their analysis plan and the available computer software.

difference between the average scores of two groups can be statistically significant, particularly when large numbers of participants are involved, yet be of no practical consequence whatever. Health educators will need to make sensible determinations regarding whether the magnitude of an observed difference, even though statistically significant, is sufficiently important to warrant action. In other words, though evaluators of health education programs should often carry out statistical significance tests, they should not be unduly swayed by the results of such analyses. Common sense must always be applied regarding the meaning of a statistically significant result.

Reporting Results[16]

Reporting the results of an evaluation study is a more difficult undertaking than is usually recognized. Results must be reported to decision-makers in a timely fashion. It does no good to receive an evaluation report three weeks after key program decisions needed to be made. Evaluators must also pay careful attention to the schemes they will use to disseminate their studies to all appropriate audiences. If possible, an evaluator should circulate preliminary drafts of a program evaluation to program personnel so that they can react to its accuracy and objectivity.

The decision-makers whom evaluators are assisting may have little experience with quantitative data. As a consequence, complicated statistical presentations may be of little value to them. Evaluators should select data-presentation procedures consonant with the technical sophistication of the decision-makers involved.

There is nothing wrong with simple graphs or "percentage correct" tables. If Program Z participants outperformed Program Q participants by 15 percent, then a bar graph representing that difference is a readily understood technique for communicating Program Z participants' advantage. (In the creation of such graphic presentations, be certain that the form of the graph accurately represents the data being depicted.) The more intuitively comprehensible the data presentation techniques, the better. Program evaluators should provide straightforward presentations of data, not fear that such approaches will be regarded as too elementary. Adequate technical back-up can be appended elsewhere.

Evaluators should not be afraid of making speculations based upon their hunches about a program so long as such conjectures are identified as such. Similarly, if any of

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[16] For additional information about reporting the results of an evaluation, see Annotated References Nos. 21 and 26.

the evaluation's findings are equivocal, then the evaluator should advise concerned audiences of this. Honesty and objectivity are the hallmarks of effective evaluation reporting. In addition, since decision-makers are typically busy people, evaluators should strive for reasonable brevity in their reports. The use of executive summaries to accompany lengthy reports is a useful practice.

The fundamental concern regarding reporting of results is that the whole thrust of the evaluation enterprise is to sharpen the decisions that are made. Decision-making will not be illuminated by incomprehensible presentations. The quality of decision-making can be enhanced only if data are understood.

Linking Measurement and Program Design

As has been stressed earlier, criterion-referenced measures are primarily useful in that they provide a clear description of what is being assessed. Those descriptions can be particularly useful to program designers and program evaluators as they attempt to create programs which focus on promoting certain attributes. To illustrate, one powerful instructional principle for promoting skills involves providing students with adequate "time-on-task." By giving students sufficient time-on-task, that is, sufficient opportunity to practice the skills sought, students can more readily attain those skills. The clarity with which a criterion-referenced measuring instrument explicates the skills that it is measuring makes it possible for program designers to organize instruction that will be congruent with the measures being employed and, thus, enhance the likelihood that program participants will acquire those skills. A health education program's designers should become intimately familiar with an intended posttest's specifications before they put together their program. Clearly described measures can become powerful catalysts to effective program design.

Ideally, the measures used to evaluate a program will have been deliberately constructed so that they not only assess important outcomes, but also so that they assess them in such a way that those outcomes can be promoted more effectively. Part of the challenge in evaluating health education programs is to select criterion-referenced measures which are not merely end-of-program gauges of effects. Instead, measures should be selected which function proactively to guide program designers and program evaluators as they attempt to improve the program's quality.

CHAPTER TWO

A DESCRIPTION OF THE HANDBOOK'S MEASURES

Chapters Five and Six of this handbook contain a number of program evaluation measures. These are measuring instruments which may be employed in the evaluation of health education programs. For the newly developed measuring instruments, one form of a measure is typically provided for adults (or older adolescents), as well as a simplified version of that measure designed for elementary grade children. In this chapter the nature of these measures is briefly described. Several types of measurement strategies not included in the handbook are also discussed.

Varieties of Assessment Instruments

There are numerous ways of classifying measuring devices. Sometimes, for example, tests are distinguished according to the way in which an examinee's responses are scored. To illustrate, we often refer to objectively scored tests such as those consisting of multiple-choice items. We also refer to subjectively scored tests such as essay examinations.

More frequently, however, measuring devices are categorized according to the type of examinee behavior that the measure is designed to elicit. One of the most commonly employed schemes for classifying measures is the three-category division of cognitive, affective, and psychomotor behaviors. A cognitive measure focuses on an examinee's intellectual behaviors. An affective measure deals with one's attitudes, interests, and predispositions. A psychomotor measure gauges one's proficiency in performing small or large muscle skills.

In reviewing the types of outcomes sought by most health education programs, four readily distinguishable categories account for the major outcomes of interest to educators. These four categories have been used in developing and categorizing this handbook's measures.

Four Categories of Measures

The four categories used to classify measures in the handbook are (1) behaviors, (2) knowledge, (3) skills, and (4) affect. It is generally held that individuals' behaviors are influenced by their knowledge, skills, and affective dispositions. Consonant with that view, when the expert

panelists isolated outcomes for which measures were to be included in the handbook, they first identified potential behavioral outcomes, then attempted to isolate the knowledge, skill, and affect outcomes which would contribute to each behavioral outcome. Let's look more closely now at each of the four types of measures included in this handbook.

Behavioral Outcomes. Measures for behavioral outcomes attempt to assess the routine behavior of individuals under normal circumstances, such as whether or not individuals smoke. Most health education programs strive to bring about lasting behavior changes in program participants, hence are ultimately focused on the promotion of behavioral outcomes. For example, a program designed to help smokers may be less concerned with participants' end-of-program scores on a written test than with their actual smoking behavior well after the program has ended.

There are several commonly employed data-gathering procedures used to secure information about individuals' behaviors. We can observe peoples' actual behavior (observation), ask them to tell us about that behavior (self-report), or physically monitor that behavior (physiologic indicators).

Evaluators are sometimes intuitively drawn to the virtues of observational approaches because, after all, "if we observe a behavior of interest, then we can be certain that the behavior actually took place." But, intuition aside, there are substantial difficulties with the use of observational techniques in assessing the impact of health education programs. For one thing, it is difficult and often costly to train observers so that they observe the behavior of interest with accuracy and consistency. More importantly, however, in most health settings we are interested in human behaviors that occur at various and unpredictable times over an extended period. Often these behaviors occur in private. Not only would the cost of paying for continuous observations be staggering, but it is clearly impractical (and, possibly, unethical) to observe individuals on an around-the-clock basis.

For some health-related behaviors it is possible to employ physiologic measurements in order to make inferences about the nature of individuals' behavior. A laboratory analysis of a person's blood composition can, for instance, reveal whether that individual has been consuming alcohol. Similarly, other physiologic tests can be used to detect traces of nicotine in the body, hence lead to reasonable conclusions about an individual's smoking behavior. In many instances the cost of using such physiologic measures may

be prohibitive for the conduct of routine program evaluations. However, in "high stakes" evaluations, that is, significant evaluations of major impact programs, or when it is relatively easy to administer physiologic measures, evaluators will certainly wish to consider the possibility of employing such measures in lieu of or in addition to self-report or observational techniques.

As with observational techniques and physiologic measures, there are definite problems associated with the use of self-report measures as a way of identifying individuals' behaviors. Not the least of these problems is the possibility for individuals to distort their responses on self-report measures so that they do not reflect actual behavior. Yet, on balance, the use of self-report measures often offers evaluators the best practical method of securing meaningful evidence about the actual behaviors of participants. In light of these practical considerations, therefore, the handbook's newly-developed behavioral measures are all of the self-report variety. A number of recent studies suggest that self-report assessment devices can be effectively employed as supplements to physiologic measures.[1]

Knowledge outcomes. Most health education specialties have a great deal of knowledge, that is, factual information, which must be transmitted to program participants. The evaluator's task is to employ measurement devices which can effectively assess participants' abilities to recall this information. Most such tests consist of objectively-scored paper-and-pencil measures of one sort or another.

Knowledge tests typically pose a variety of questions related to the factual information being assessed. In most of these tests there is substantial ambiguity regarding what information is eligible for testing. Suppose, for example, that an instructor in a smoking program merely knew that there would be questions on a posttest dealing with the consequences of smoking. There is simply no way to anticipate the enormous variety of test items which could be constructed regarding these consequences. To the extent that the program's quality is being judged, at least in part, by participants' performances on the posttest, the program's evaluation is at the mercy of an item-writer. No one except the item-writer knows for sure that is to be tested.

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[1] See, for example, Petitti, D.B., Friedman, G.D., & Kahn, W. Accuracy of information on smoking habits provided on self-administered research questionnaires. American Journal of Public Health, 1981, 71, 308-311.

To counteract this difficulty, all of the knowledge measures specially developed for this handbook consist of test items based directly on a series of statements embodying important factual information related to the content area being tested. All of the test-eligible statements are listed in the sets of test specification used to generate the test items. (See Chapter Seven) In addition, the test specifications set forth the permissible variations of these statements that can be used to create binary-choice True/False items. As a result, both the program's instructional staff and the evaluator possess an unambiguous idea of the universe of content upon which the knowledge tests will be based.

One advantage of using binary-choice test items is that an exhaustive list of all the content eligible for testing can be compiled. An additional advantage of the binary-choice approach to the assessment of knowledge is that if the program is targeted at individuals who do not possess reasonable reading skills (such as, say, limited English-speaking paricipants), the items can be read aloud to examinees with little increase in the necessary testing time. Reading aloud a series of multiple-choice or matching items would be far more cumbersome.

It is sometimes feared that the results of a binary-choice test may reflect mere chance rather than what examinees actually know, simply because examinees can correctly guess answers at a 50 percent rate. Although it may be true that guessing can play a major role with one or two True/False items, with longer tests the odds of guessing one's way toward success are slight indeed. For example, there is one chance in four that an examinee could correctly guess answers on two binary-choice items. To guess ten out of ten such items correctly, however, the odds snrink to less than one in 1,000. By using binary-choice tests that contain a sufficient number of items, for instance, tests with 20 or more items, we substantially reduce the likelihood that guessing will so influence an examinee's test score that we do not secure a reasonable estimate of that examinee's knowledge.

Because examinees will always be able to guess some items correctly on a binary-choice test, program personnel should not become too jubilant over scores that are slightly above the 50 percent correct expected by chance alone. By using reasonably long binary-choice tests, however, there usually will be more than enougn variability in examinee performance to detect differences in the effectiveness of programs.

Skill outcomes. Outcomes dealing with participant skills are those which call for examinees to apply knowledge, not merely recall it. The attributes assessed in the handbook's newly-developed skill measures are all higher order cognitive skills. For example, one's ability to engage in the use of situational control techniques would be an example of the type of skill measured by the handbook's skill measures.

These skill measures generally emphasize test items in which the examinee is asked to employ higher order cognitive processes to distinguish among choices in a variety of simulated real-life settings. All of these choices focus on health-related courses of actions that an individual might pursue. In other words, application, not recollection, has been sought in the handbook's skill measures, forcing examinees to employ skills in settings approximating those they would encounter in real life. In many instances the skill measures build directly on the knowledge measure(s) associated with outcomes most closely related to that skill.

Affective outcomes. Affective outcomes refer to the variety of non-cognitive variables, such as attitudes, interests, and values, which are thought to predispose individuals to act in a particular manner. A negative attitude toward smoking, for example, is believed to incline a person to avoid cigarettes. Similarly, a positive attitude toward the virtues of not smoking is thought to dispose a person to avoid cigarettes.

Although it is possible to infer the nature of an individual's affective status from observations of that person's behavior, the most common technique for assessing affect involves the use of self-report inventories. The manner in which the items on a self-report affective inventory are constructed yields scores which require either (1) little in the way of inferences to interpret the scores or (2) substantial inferences in interpreting the meaning of the scores. We refer to the former as low-inference self-report measures, and to the latter as high-inference self-report measures.

Low-inference self-report measures typically present respondents with a series of straightforward questions or statements such as those asking for the degree of agreement with positive and negative statements about smoking. Responses to such measures can be readily interpreted if respondents are telling the truth. To heighten the likelihood of securing truthful responses, those completing affective measures are often directed to return them anonymously.

High-inference self-report measures are typically designed to be less transparent in what they are attempting to measure. To illustrate, if a relationship had been found between a person's religious views and smoking, we might ask people about their attitudes regarding religion in order to get at their attitudes regarding smoking. The virtue of high-inference measures is that, because their purpose is masked, it is difficult for the respondent to provide dishonest responses or to respond in the direction deemed desirable. On the other hand, in order to interpret the results from high-inference measures, we often must make quite tenuous inferential leaps. The less obvious the purpose of the items, the less likely that individuals will respond untruthfully, but the greater the required inference.

Because of the interpretation risks associated with high-inference assessment schemes, all newly-developed measures of affect in the handbook employ low-inference strategies. These self-report affective inventories sometimes rely on Likert-type scales wherein the respondent registers varying degrees of agreement/disagreement with statements regarding the affective dimension of interest. In other instances respondents are asked to estimate whether or not they would behave in a certain way (such as resisting the offer of a cigarette), then are told to indicate the degree of confidence which they have in each such estimate.

In general, it is assumed that a person's knowledge, affect, and skills contribute directly to that individual's behavior. And since most health education programs are ultimately interested in modifying participants' actual behaviors, then the acquisition of appropriate knowledge, affect, and skills can be seen as potentially precursive to the attainment of desired behavior. Thus, in evaluating health education programs that have not succeeded in achieving desired behavioral changes, it is often possible to detect shortcomings in the promotion of en route outcomes dealing with knowledge, skills, or affect.

Other Indicators of Effects

As indicated earlier, this handbook does not contain observational assessment techniques or physiologic measures. It also does not treat measures of health effects which might be used to determine whether health education programs are having their desired impact. Only the previously described behavioral, knowledge, affective, and skill measures have been included. These four categories certainly do not exhaust the range of possible assessment tools that evaluators should consider when they undertake an evaluation. There are numerous other sorts of extant data and assessment strategies which should be thought of as potentially helpful.

As an illustration of the sorts of existing data that evaluators often find useful, we can think of the numerous archival records of relevance to health behavior, e.g., smoking incidence data. Such archival data can often prove illuminating in making decisions about health education programs. Evaluators must attempt to locate existing records of such phenomena if they pertain to the decisions under consideration.

To illustrate the kinds of more elaborate assessment strategies which might be used, we will briefly describe one technique designed to secure responses to sensitive questions. The randomized response technique (RRT) is an effective technique for obtaining accurate information from respondents on a small number of highly sensitive issues such as the use of illegal drugs or alcohol. By presenting respondents with both a sensitive and a nonsensitive question, and by having respondents themselves use a random procedure (such as a coin flip) to select the "to be answered" question, respondents are expected to answer the sensitive question honestly because the interviewer can not know which question is actually being answered. An example of the non-sensitive question might be "Have you attended a PTA meeting at school during the past 12 months?" The sensitive question might ask, "Have you used heroin during the past 12 months?" An accurate estimate of the number of people responding "yes" to the sensitive question (e.g., the number of people reporting heroin use) can then be computed by subtracting the likely proportion of "yes" responses to the non-sensitive question.

Another assessment strategy involves the use of respondents as "informants" who report information about relatives, friends, etc. Often these reports can be made so that the individual about whom the report is made remains anonymous. This procedure, described as the multiplicity technique by some and the nominative technique by others, is described in more detailed elsewhere.[2]

Previously-Developed Measures

In addition to the development of new measures to coincide with high priority outcomes, an extensive effort

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[2] Fishborne, P. Survey techniques for studying threatening topics: A case study in the use of heroin. Unpublished doctoral dissertation, New York University, 1980.

was made to identify existing high quality measures which corresponded to these outcomes. This effort included a comprehensive computer search of seven data bases, recommendations of measures from panelists and panel-identified experts, and reviews of books, articles, and instruments submitted by panelists.

The computer search was conducted at the UCLA Biomedical Library using the following data bases: the Medline, ERIC (Educational Resources Information Center), Psychological Abstracts, Excerpta Medica, NIMH (National Institute of Mental Health), NCMH (National Clearinghouse for Mental Health), and SSIE (Smithsonian Science Information Exchange). In addition to input from the project panelists, area-specific experts and agencies identified during the project were sent summaries of the expert-panel meeting accompanied by a letter requesting assistance in the effort to locate existing measures and relevant publications.

Once collected, all measures were subjected to an initial content screening by an experienced reviewer. The purpose of this screening was to determine whether a measure corresponded to the panel-identified outcomes. Measures which satisfied the outcome congruence screening were then subjected to a further psychometric review. Prior to initiating the review of a measure's psychometric quality, however, the authors or agencies who developed the measure were contacted to request any available supporting documentation or relevant data about the instrument. In addition to being given an overview of the purpose of the project, authors were informed of the criteria to be used in the psychometric review in order to minimize the possibility that they might inadvertently fail to supply relevant data.

The primary criterion for inclusion in this handbook was, ultimately, degree of congruence with priority outcomes. Many measures of high quality had to be excluded because they did not possess sufficient correspondence with these outcomes to be of use to evaluators interested in assessing those outcomes. There are, in fact, several handbook outcomes for which no previously-developed measures have been included, primary because of a lack of existing measures targeted solely to those outcomes. Where multiple measures with adequate correspondence to a given outcome were identified, the measures included in the handbook were selected on the basis of their item quality and the extent to which the set of measures selected for an outcome represented a range of approaches to the measurement of that outcome.

Test Specifications

For each of the measures developed for the handbook a set of test specifications was created to guide in the

construction of the measure. As indicated in the previous chapter, this set of specifications operationalizes the outcome statement for which the measure serves as an indicator. The test specifications for all newly-developed measures are presented in Chapter Seven.

Evaluators and program personnel should find the test specifications of substantial utility, as these documents set forth in unequivocal terms the attributes being measured. This clarification of what is assessed should permit program personnel and evaluators to target their efforts more precisely to the program outcome as operationalized by the set of specifications. While one can employ the measures without referring to the specifications, most users of the measures will be markedly benefited by studying the set of specifications for each measure to be used. Program personnel in particular may want to consult the content supplements and the descriptions associated with many of the measures when planning their program itself.

The test specifications also permit program personnel to generate additional test items, if they so desire, by following the rules for item construction which have been set forth. Additional test items may be particularly useful in conjunction with knowledge and skill outcomes, where they can be employed during the course of a program as instructional tools and to monitor participant progress. Evaluators should realize, however, that any new measures created from the test specifications will not necessarily be <u>equivalent</u> forms, that is, forms equal in difficulty and other psychometric aspects to the forms presented in the handbook. Performance information on both the original form and any alternate forms would have to be gathered before the equivalence of such measures could be demonstrated. Therefore evaluators should be reluctant to use alternate forms as though they are equivalent, for example, in a pretest-posttest design.

To reiterate, then, in Chapters Five, Six, and Seven will be found, respectively, the newly developed measures, the existing measures, and the specifications for the newly developed measures. All of the outcomes upon which these measures are based are presented in Chapter Four. Each chapter is introduced with a brief description of that chapter's contents and an indication of the major descriptive headings contained therein. In Chapter Three suggestions are offered for using the measures in program evaluation.

CHAPTER THREE

HOW TO USE THIS HANDBOOK

Selecting Evaluation Measures

The measures that are selected for a program evaluation should correspond, as closely as possible, to outcomes of interest and importance to program personnel or other decision-makers associated with the program (e.g., the program's sponsoring agency). In some cases the measures may correspond directly to program goals. Other measures may be selected because they correspond to outcomes of ancillary interest. For example, if a program were focused on modifying participants' health behaviors, it might also be of interest to see if attitudinal changes also resulted from the program.

The desire to have a broad understanding of the impact of the program, potentially across all four areas for which this handbook presents measures, must be balanced with the need to avoid unnecessary use of program or evaluation resources. There are likely to be many interesting things about a program that one would like to know. But answering those questions requires the time and money of the program and, most likely, the time of program participants. Because personnel and financial resources are limited, and also because participants may come to resent what they consider to be unnecessary intrusions, measures should be selected carefully. An emphasis should be placed on using those measures that are likely to have implications for improving the program in the future.

One way to use the handbook is to determine the extent to which its outcome statements coincide with a program's stated objectives. Measures for those outcomes can then be considered as possible assessment devices to use in gauging the attainment of program objectives.

Another way to use the handbook is to consider its measures as reflecting possible outcomes that might be promoted by programs. As indicated earlier, program designers can create more effective programs if they comprehend clearly the nature of the targets at which the program is aimed. Although the sets of measures included in this handbook are far from exhaustive and certainly not prescriptive in any sense, they do represent a range of possible program aspirations. Furthermore, the measures are based on outcomes deemed important by a panel of experts well acquainted with health education programs in this field.

By reviewing all of the outcome measures in the handbook, at least by reading each measure's descriptor sheet, program designers and program evaluators can increase the range of options they may wish to consider as potential program outcomes.

Administration Procedures[1]

Evaluators need not develop special sets of directions in order to administer the measures that are presented in this handbook. Directions are provided with each measure, informing respondents how to supply the requested information. Test administrators should be sure to familiarize themselves with the directions and the measure itself before administering it. They can thus provide clear and accurate information to any requests for clarification by respondents.

Test administrators, whether or not they are program personnel, should be sensitive to the potential difficulty some respondents may have in reading either the directions or the test items themselves. Test administrators should be available to assist respondents as needed. It may be useful, if there is concern about the reading ability of the respondents, to read the directions aloud so as to ensure that all respondents understand what they are to do. If there is doubt about the ability of respondents to read the items, the items themselves on most measures can also be administered orally, either to groups of participants or to individuals. Respondents should be encouraged to ask questions if they do not understand their task or any items on a measure.

As a related issue, the measures do not require respondents to supply their names. This was done to help ensure the confidentiality of responses to potentially sensitive issues. If program evaluators believe that the integrity of the data would not be compromised by asking respondents to provide their names or other personal or demographic information, such information may be requested. Alternatively, if evaluators wish to be able to link performance on one measure to performance on another, this may be accomplished by assigning a code number to every individual and having the individual use that code designation whenever providing data. Respondents may also select their own identification code (e.g., mother's maiden name) if this would help alleviate fears about preserving confidentiality. In such cases, it is important that the same code be used consistently on all measures.

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[1] For additional information about administration procedures, see Annotated References 15 and 27.

The use of anonymously completed measures highlights a general concern associated with the administration of such measures in a program evaluation context. Test administrators should strive to create conditions in which respondents are genuinely comfortable in supplying truthful answers. Too often we find program personnel administering evaluation devices under circumstances which create subtle pressures for participants to respond in a manner satisfying to program staff. An effective evaluation, however, is based on honest responses, not socially desirable ones. Thus, all aspects of measure administration should be conducted with careful attention to the possible impact on participants' responses. For example, an external person rather than a member of the project staff could administer measures. Responses could also be collected anonymously, then placed in sealed envelopes in plain view of all participants. Other such techniques might be devised in order to elicit honest responses. Additional considerations related to possible response bias will be discussed later in this chapter.

Scoring

Scoring keys are provided following all newly-developed knowledge, skill, and affective measures, as well as for all existing measures which had such information available. A more complete justification of the proposed scoring scheme associated with each newly-developed affective measure is also presented in its corresponding test specifications.

As a general rule, knowledge and skill measures are scored by computing the total number of correct responses. Affective measures are scored by computing the average response for a given measure. This procedure for affective measures simplifies interpretation of the obtained score (e.g., a respondent would obtain a score of 4.2 on a 5-point scale, rather than obtaining a score of, for example, 46 out of 55 points). It also reduces confusion in dealing with omitted responses.

On the newly-developed measures, higher scores are better. That is, higher scores on the cognitive measures (knowledge and skills) indicate that the respondents answered more items correctly. High scores on the affective measures indicate attitudes consistent with those promoted by the program (as set forth in the outcome description). A specific scoring key is not provided for behavioral measures, where it should be clear from the items themselves what the desired behavioral change should be.

In addition to considering performance of respondents on the total measure, items on some of the newly-developed

affective measures are categorized to permit consideration of the different dimensions in the measure. Hence, part scores as well as total scores can be computed to provide a more in-depth analysis of participants' responses. Similarly, an analysis of incorrect responses is provided on selected skill measures to assist program personnel in determining the kinds of incorrect answers (distractors) that have been selected by examinees. By considering not only whether items were answered correctly, but also by looking for patterns in the incorrect responses, program personnel can often target the program towards reducing common misconceptions. Thus, by using the incorrect response analyses, program personnel may be able to infer why specific incorrect options were selected and also enhance program participants' understanding of the correct response by describing to them the flaws in frequently selected incorrect responses.

Missing data. One of the most frequent sources of confusion in scoring measures stems from the treatment of missing data. For purposes of this discussion we shall consider two types of missing data. The first type of missing data arises when a respondent does not answer certain items on a measure. The second type of missing data occurs when a respondent does not return a measure at all.

In the former case, suppose a respondent omits one or more items on a measure. Should the scorer infer that the respondent didn't read the item, didn't know the answer, or didn't understand the question? The way missing data are treated depends on the type of measure (cognitive, affective, or behavioral), the scoring procedures being used, and the judgment of the person responsible for data analysis. As a general guideline, one should try to treat missing data in a manner consonant with the most plausible assumption about why the data were omitted. A few examples may illustrate.

Blanks or omitted responses are often treated as incorrect responses for cognitive measures (i.e., those assessing knowledge and skill). Respondents' scores are then the sum of the correct responses, under the assumption that respondents would have marked an answer if they felt they knew it. If there are other more plausible assumptions about why a response was omitted, such as confusion about what the question was asking, this approach might not be advised. In that case, evaluators might consider missing and incorrect responses separately, thus creating a slight increase in the complexity of the analysis procedure.

The best procedure for dealing with missing affective responses should, again, be consistent with the general guideline of selecting the procedure that requires the fewest

unsubstantiated assumptions about the missing responses. Consider the case in which respondents are asked to indicate the extent of their agreement with a series of statements on, for example, a 5-point Likert scale. Because a score on this measure is obtained by averaging the responses, missing data can usually be ignored, and the respondent's score can be computed based on the items for which there are responses. This assumes that the responses to the unanswered questions are, on average, the same as the responses to the questions that were answered. A different approach may be used if this assumption seems unwarranted. For example, if all the items of a particular type are omitted, it may be unwise to assume that the answers to those items would be the same as the answers to all the other items. In this case, the entire measure may have to be excluded from the analysis.

In affective measures on which respondents are required to estimate their confidence regarding a series of statements, similar procedures for treating missing responses can be used. Hence, in contrast to cognitive measures, respondents are typically not penalized for omitting responses on an affective measure.

There are no particularly useful procedures for dealing with missing data on behavioral measures that require respondents to answer a series of independent questions to describe their participation in health related activities. Each measure may need to be considered as a whole, with the evaluator or program personnel making an overall decision about whether the respondent engaged in adequately healthful activities or not. To the extent that the questions tap independent behaviors, there is no way to infer what the response to one item may be on the basis of responses to other items. For example, if an individual reports the number of cigarettes smoked, there is no way of inferring whether that person inhales when smoking. Hence, decisions regarding missing data on behavioral measures must be made on a more individual basis. It is important, however, to employ consistent decision rules when dealing with any missing data.

The problem of how to deal with missing data when certain participants complete no items on selected measures is a more difficult one than the problem just addressed. That is, what can be done if, because the respondent either refused or was unavailable to complete the measure, we have no data at all regarding a given participant's status on a given outcome? The answer to this question depends on the data-gathering design that is being used and on the most likely reasons that the data were not obtained.

One of the more frequent contexts in which this problem arises is when a pretest-posttest design is used. In this design, measures are administered to program participants prior to beginning the program and, again, at the conclusion of the program. Observed changes between pretest and posttest scores are attributed to the impact of the program. But suppose that some participants do not complete the program and, therefore, are unavailable to complete the posttest questionnaires. Differences between the participants' average pretest scores and their posttest scores may come from systematic differences between the individuals who took the pretest and the individuals who completed the program, hence took the posttest. For example, suppose that, even before a program began, some participants had strong intentions to behave in a healthful way. Others did not. Now, suppose that a disproportionate number of those respondents who did not intend to behave in a healthful way dropped out of the program. If we considered the posttest responses of only those participants who remained in the program for its entire duration, while also considering the pretest responses of all the original participants, we would find that the posttest scores indicated stronger intentions to behave in a healthful way than pretest scores, even if the program had no effect on participants' intentions. This situation would arise because of the elimination of a disproportionate number of respondents who did not intend to change their behavior. Thus, observed changes might be due to differences in respondent characteristics rather than program impact.

To safeguard against this possibility, evaluators must be attentive to the characteristics of respondents, particularly when data at different points in time are compared. In the preceding example, it might be advisable to exclude the pretest data of those participants who did not provide posttest data, and to compute pretest and posttest means on the basis of those individuals for whom complete data exist. To do this would, of course, require using some unique and consistent identification code on all measures completed by each participant so that one could know whose pretest responses should be excluded. If it is necessary to eliminate a particular category of respondents from the analysis, one should be aware of the limitations this imposes on the ability to generalize the findings from the remaining respondents to the broader group of eligible participants. That is, in the preceding example we should only describe the effects of the program on participants who already intended to make the desired behavioral change (remember that a disproportionate number of other participants left the program),

not on any person who might consider enrolling in this particular health education program.

The key issue in deciding what to do when individuals or groups of individuals fail to return selected measures is to determine the extent to which the non-respondents differ in any systematic way from the respondents. Are non-respondents less motivated initially? Do they vary on any major demographic variables, such as sex, ethnicity, or previous education? Are they more knowledgeable about the given health area than those who completed the measures? If the answer to any of these questions is yes, then it is important not to compare all pretest responses with all posttest responses. If, however, there appear to be no systematic differences between those respondents for whom complete data are available and those who did not return all measures, then it may be acceptable to consider all available data. This might be the case if, for example, several participants were sick on the day posttest measures were administered, but the absent respondents did not differ systematically from the other participants. Thus, the degree of attention to this type of missing data depends on the extent to which there is reason to suspect a systematic bias in the findings as a result of the missing information. At the very least, an evaluator should describe the characteristics of the participants who completed the measures at each administration period, so that those using the evaluation report can consider for themselves whether the assumptions guiding the treatment of missing data appear to be justified.

Interpreting Responses

It would be comforting to assume that the data, once collected and analyzed, provide accurate accounts of the respondents' cognitive, affective, and behavioral status. Unfortunately, however, there are many instances in which one cannot be certain that the inferences made from the data are fully justified. For example, in the cognitive areas we assume that the more items correctly answered by an individual, the more that the individual knows about the outcome being tested. But it is also possible, although in this case perhaps unlikely, that some respondents who were highly knowledgeable about the information being tested did not get a high score because they couldn't understand some of the items or had a hard time reading the test. It is the test developer's responsibility to try to reduce such confusion by, for example, ensuring that the items are written as simply as possible and that there are no extraneous sources of difficulty. It is the test user's responsibility to remember that there will inevitably be the potential for some confusion, and to interpret the measures in light of this potential.

This problem is probably more apparent in interpreting affective and behavioral measures. It has been well-documented that there are "response sets" or systematic sources of bias in responses to such measures. To illustrate, one of the best known response sets is social desirability, or the tendency of individuals to provide responses which are consistent with what they believe to be expected of them. So, for example, individuals might indicate that they intend to refrain from smoking because they believe that it is "appropriate" for them to do so, rather than because they actually have that intention. There is little that one can do to preclude completely the possibility of such response sets. To reduce at least somewhat the likelihood of response sets, evaluators can avoid language which clearly indicates the desired response, preserve the anonymity of respondents, and ensure respondents that the evaluation is more concerned with understanding the program than with describing selected participants. An atmosphere in which honesty rather than "proper behavior" is promoted is definitely conducive to obtaining accurate responses in sensitive areas.

This problem is, perhaps, even more pronounced in behavioral self-report measures, where respondents may misrepresent their behavior. Respondents may be reluctant to admit that they smoke. Although the measures have been developed to encourage accurate responses, it is the responsibility of program personnel and evaluators to do all that they can to promote accurate responses and to minimize the threat of repercussions should individuals behave in undesirable ways. Guaranteeing anonymity is one common procedure, but establishing credibility with respondents is also critical. In addition, observation, physiologic measurement, and procedures such as the randomized response technique may be used to verify the accuracy of behavioral self-reports.

The problem is not as overwhelming as it may sound. Clearly, whenever one must rely on self-report data there is the possibility of inaccurate responses. But careful measure development can reduce the degree of perceived threat in the measures and this can promote honesty. Furthermore, program personnel can help allay the anxiety of respondents so as to increase honesty of responses. Corroboration, or the threat of corroboration, by an external source can reduce the likelihood that respondents will bias their responses. In addition, many designs compare responses at one point in time to responses at another, or compare different groups of respondents to each other. In these comparative designs, whatever systematic bias there is may be found at all measurement times and, hence, may not influence indices of change. Finally, by being aware that such problems may exist, those who use evaluation measures can encourage caution in interpreting evaluation findings and urge verification of data where it is warranted.

Enriching Evaluations

This handbook provides measures that may be useful in assessing a program's outcomes. Typically, a health educator might select not merely one but several measures to use in a program evaluation. Multiple outcome measures can markedly enhance the quality of an evaluation.

Although the outcomes measured in the handbook have been deemed important, they may not coincide directly with the outcomes of interest to any given program. And they certainly do not exhaust the issues that may be of interest to those individuals involved in a program. Program evaluators and personnel should not limit their data-gathering efforts to the measures provided in this handbook. Rather they should supplement these measures with others that more directly address the particulars of the evaluation settings in which they find themselves.

The emphases of any supplementary evaluation activities should coincide with the information needs and interests of those concerned with the program. Probably the most useful information elicits ways to enhance the effectiveness of the program, either as it has already been implemented or as it will be carried out in similar programs planned for the future. For example, questionnaires may be administered to program participants asking them to identify any follow-up support or information they might need in order to continue to refrain from smoking. Participants might also be able to provide specific suggestions for improvement of the program should it be offered to others.

It is impossible to isolate all the information that might be useful to gather for an evaluation. But the following point cannot be overstated: Evaluations should focus on the systematic collection of data that can be used to improve the quality of health education programs and, in turn, the physical and psychological well-being of participants and of the community at large. Evaluation should not be conducted for the sake of evaluation but should be viewed as a tool to enhance the effectiveness of health education programs. It can only fulfill this promise if those guiding the evaluative efforts direct evaluation resources with this goal in mind, and if they use their resources wisely. The measures that comprise the majority of this handbook should provide a solid foundation for effective evaluation efforts. But program personnel and evaluators in the field must structure evaluations to serve the needs of those with a stake in the findings, and their professional insights are likely to be the best guide possible.

Using Unproven Measures

In the remainder of this handbook there are numerous measures available for use by evaluators of health education programs. The measures developed specifically for this project, as well as some of the already existing measures included here, share one substantial shortcoming. They have not been subjected to rigorous empirical investigations to ascertain their psychometric qualities, especially their reliability and validity. When using such measures, how should program evaluators proceed? The answer is all too clear--with great caution.

Although all of the measures included in the handbook were developed with substantial care, until there have been reliability and validity studies carried out which verify those measures' technical adequacy, they should be employed with substantial care. To illustrate, in the absence of reliability and validity data, one should be most reluctant to draw inferences about the meaningfulness of an individual's score on particular measures.

In using measures for purposes of program evaluation, we often aggregate results for a group of participants rather than try to work with individual participants' responses. By using the pooled responses of many individuals, we can have more confidence in the average of the group since anomalous scores will either tend to cancel each other out or be outweighed by the total set of responses. Even with such aggregated scores, however, care is warranted when using measures whose reliability and validity have not been empirically confirmed.

The general caveat regarding the use of measures which have not yet been subjected to empirical analysis is for program evaluators to proceed very carefully in employing such assessment instruments. The new measures that are included in Chapter Five of the handbook were developed with great care, employing a variety of internal and external review procedures to assure that their content and form was appropriate. Yet, although one can have confidence that the process used in their development was systematic and thoughtful, the opportunity to subject those measures to empirical verification has not yet arisen. Such an appraisal of the new measures' technical adequacy is planned for the future. It is likely that the handbook's measures may be superior to the hastily created measures seen so often in the evaluation of health education programs. Nonetheless, evaluators of health education programs should regard the handbook's measures as a resource to be used--but to be used with prudence.

CHAPTER FOUR

PROGRAM OUTCOME STATEMENTS

The outcomes presented in this chapter are program evaluation goals identified by a panel of subject matter and health education experts selected as advisors for this project. The panelists identified one major behavioral outcome, namely, refraining from smoking. Knowledge, skill, and affective outcomes considered likely to predispose individuals to adopt this target behavior were also selected. The process by which these outcomes were isolated and put in priority order is explained more completely in the Preface to the handbook.

This chapter's program outcome statements have guided the development of the rest of the handbook. Chapter Five presents newly-developed measures designed to assess each outcome. Chapter Six contains previously-developed measures selected for their congruence with the outcome statements. Chapter Seven consists of test specifications for all the newly-developed measures. These specifications define the outcomes, describing the precise nature of each one.

The outcome statements that follow are relatively brief definitions of a particular behavior, knowledge, skill, or attitude considered important for smoking health education programs. The title of each outcome statement is used throughout the handbook to reference the measures corresponding to it. As a further aid to handbook users, the outcome statements presented in this chapter are accompanied by the titles of the measures that correspond to each one. The target population for each measure is also noted. Handbook users can locate the measures for each outcome on the page specified.

BEHAVIORAL OUTCOME

REFRAINING FROM SMOKING

Individuals who never have smoked on more than an experimental basis do not initiate the regular use of any tobacco-related products; individuals who previously have smoked on more than an experimental basis abstain from the use of all tobacco-related products.

Smoking Questionnaire . . . . . page 54

Target population: Adults or adolescents

Question About You . . . . . page 58

Target population: Elementary school children

Smoking Habits Questionnaire . . . . . page 129

Target population: Adults or adolescents

KNOWLEDGE OUTCOMES

CONSEQUENCES OF SMOKING

Individuals can accurately recall information about the possible health, social, and economic consequences associated with smoking.

Smoking and its Effects . . . . . page 60

Target population: Adults or adolescents

Facts About Smoking . . . . . page 64

Target population: Elementary school children

UTILIZATION OF SITUATIONAL CONTROL TECHNIQUES

Individuals can accurately recall information about smoking cues and possible response techniques designed to control the smoking behaviors associated with these cues.

Situational Control Techniques. . . . . page 67

Target population: Adults or adolescents

SKILL OUTCOMES

RESPONDING TO SMOKING CUES

Individuals can select appropriate nonsmoking responses to smoking cues by using situational control techniques.

Breaking Smoking Habits . . . . . page 71

Target population: Adults or adolescents

ASSERTIVENESS IN RELATION TO SMOKING

Individuals can use assertiveness techniques in resisting peer pressure to smoke and in asking others to refrain from smoking.

Smoking and Assertivess . . . . . page 78

Target population: Adults or adolescents

INTERPERSONAL RELATIONSHIPS: EFFECTIVE COMMUNICATION TECHNIQUES

Individuals can interact effectively with significant others in their lives. The nature of these interpersonal relationships will be such that individuals communicate clear and direct messages in health-related situations.

Communicating About Smoking . . . . . page 86

Target population: Adults or adolescents

Talking About Smoking . . . . . page 94

Target population: Elementary school children

INTERPERSONAL RELATIONSHIPS: EFFECTIVE RESPONSE TECHNIQUES

Individuals can interact effectively with significant others in their lives. The nature of these interpersonal relationships will be such that individuals respond with understanding and acceptance to the messages of others in health-related situations.

Responding to Others About Smoking . . . . . page 99

Target population: Adults or adolescents

AFFECTIVE OUTCOMES

PERCEIVED CONSEQUENCES OF SMOKING

Individuals believe that nonsmokers are healthier, more aesthetically appealing, better able to perform athletically, and more socially accepted than individuals who smoke.

People Profiles . . . . . page 107

Target population: Adults or adolescents

Think About People . . . . . page 111

Target population: Elementary school children

Do You Want to Change Your Smoking Habits? . . . . page 134

Target population: Adults or adolescents

PERCEIVED ABILITY TO REFRAIN FROM SMOKING

Individuals believe that they possess the ability to abstain from smoking. This perception of capability includes perceived abilities to control personal smoking behaviors and to resist external pressures to smoke.

Refraining from Smoking . . . . . page 115

Target population: Adults or adolescents

Smoking Situations . . . . . page 137

Target population: Adults or adolescents

Smoking Self-Efficacy Questionnaire . . . . . page 141

Target population: Adults or adolescents

Posttreatment Confidence Questionnaire . . . . . page 146

Target population: Adults or adolescents

INTENTION TO REFRAIN FROM SMOKING

Individuals believe that they intend to abstain from smoking.

Smoking Survey . . . . . page 119

Target population: Adults or adolescents

Smoking Questions . . . . . page 122

Target population: Elementary school children

RESPECT FOR ONE'S BODY

Individuals believe that they are willing to engage in those activities that are indicative of a respect for their body and the need to take care of it.

My Body . . . . . page 125

Target population: Elementary school children

CHAPTER FIVE

MEASURES DEVELOPED FOR THIS PROJECT

This chapter contains all of the measures that have been newly developed to correspond to the smoking program outcome statements listed in Chapter Four. The measures are presented in the same order as the outcome statements, that is, behavioral measures followed by measures of knowledge, skill, and affect. The adult/adolescent version of each measure is presented first. In those instances where a children's measure has also been developed for an outcome, that measure follows immediately after the adult form.

A descriptor page precedes each measure. This page indicates the type of measure (behavioral, knowledge, skill, or affective), the title of the outcome assessed, and the target population for the instrument. A general description is presented, providing an overview of the assessment strategy employed in the measure. Finally, the pages in the handbook where the test specifications for the measure can be found are also cited.

All of the measures in this chapter have been readied for possible photocopying, with directions to respondents printed at the top of the first page of each instrument. Scoring instructions follow all knowledge, skill, and affective measures.

SMOKING QUESTIONNAIRE

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Refraining from Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are asked about their smoking behavior to determine if they currently smoke. This information can be used as a measure of how effectively a program has aided participants in refraining from smoking. For individuals who indicate that they do currently smoke, this measure elicits the specific characteristics of that smoking behavior, including substance, frequency, and topography, in order to measure progress towards the goal of complete cessation.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 152-154.

SMOKING QUESTIONNAIRE

Please answer the following question as carefully as you can, thinking about your smoking behavior during the past week.

1. Have you smoked any cigarettes during the past week?

   ____ a. Yes
   ____ b. No

If you checked "Yes," please go on to question 2 below. If you checked "No," please go on to question 8 on p. 2.

2. Now, think back over the past week. On the average, about how many cigarettes did you smoke each day? _____

3. What brand of cigarette did you smoke the most during the past week? _____

4. In general, what type of cigarettes did you smoke?

   a. Tip: _____ Filtered
   _____ Unfiltered
   _____ An equal amount of both types
   _____ Don't know

   b. Length: _____ Regular
   _____ King size
   _____ 100 Millimeter
   _____ 120 Millimeter
   _____ Different sizes
   _____ Don't know

   c. Tar and Nicotine Level: ____ High-tar and -nicotine
   ____ Medium-tar and -nicotine
   ____ Low-tar and -nicotine
   ____ Different levels of tar and nicotine
   ____ Don't know

   d. Type: _____ Mentholated
   _____ Plain
   _____ An equal amount of both types
   _____ Don't know

5. In general, how deeply did you inhale when smoking cigarettes?

____ a. I inhaled deeply into my chest.
____ b. I inhaled only partly into my chest.
____ c. I inhaled into my throat only.
____ d. I inhaled into the back of my mouth only.
____ e. I just puffed. I didn't really inhale at all.

6. In general, how far down did you let each cigarette burn before you put it out?

____ a. As far down as possible
____ b. About 3/4 of the way down
____ c. About 1/2 of the way down
____ d. Less than 1/2 of the way down

7. In general, how much of each cigarette did you let burn without smoking it?

____ a. Most of it
____ b. Some of it
____ c. Almost none of it

8. Have you smoked any cigars during the past week?

____ a. Yes
____ b. No

If you checked "Yes" on question 8, please go on to question 9. If you checked "No," please go on to question 11.

9. Now, think back over the past week. On the average, about how many cigars did you smoke each day? _____

10. In general, how deeply did you inhale when smoking cigars?

____ a. I inhaled deeply into my chest.
____ b. I inhaled only partly into my chest.
____ c. I inhaled into my throat only.
____ d. I inhaled into the back of my mouth only.
____ e. I just puffed. I didn't really inhale at all.

11. Have you smoked at least one pipeful of tobacco during the past week?

____ a. Yes
____ b. No

If you checked "Yes" on question 11, please go on to question 12. If you checked "No," you have finished this Smoking Questionnaire. Thank you.

12. Now, think back over the past week. On the average, about how many pipefuls of tobacco did you smoke <u>each day</u>? _____

13. In general, how deeply did you inhale when smoking a pipe?

____ a. I inhaled deeply into my chest.
____ b. I inhaled only partly into my chest.
____ c. I inhaled into my throat only.
____ d. I inhaled into the back of my mouth only.
____ e. I just puffed. I didn't really inhale at all.

You have finished this Smoking Questionnaire. Thank you.

QUESTIONS ABOUT YOU

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Refraining from Smoking

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are asked about their smoking behavior to determine if they smoke, how many cigarettes they smoke, and whether or not they inhale when they smoke. Responses can be used as a measure of the extent of smoking behavior among elementary school-age children.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 155-156.

QUESTIONS ABOUT YOU

There are two questions below. Please answer both of them. For each question, put a check next to your answer. Your answers will be kept secret, so please tell the truth.

1. Last week, about how many cigarettes did you smoke each day?

   ____a. I didn't smoke
   ____b. 1-5
   ____c. 6-10
   ____d. 11-20
   ____e. More than 20

2. If you smoked, how often did you <u>inhale</u>?

   ____a. I didn't smoke
   ____b. I just puffed
   ____c. I inhaled only some of the time
   ____d. I inhaled almost all of the time

SMOKING AND ITS EFFECTS

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Consequences of Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements about biomedical, economic, and social consequences of smoking behavior. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 157-166.

SMOKING AND ITS EFFECTS

This test consists of 20 statements about smoking and its effects. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE	FALSE		
___	___	1.	Smokers of filter cigarettes are more likely to develop lung cancer than smokers of non-filter cigarettes.
___	___	2.	Nicotine causes blood vessels to increase in size.
___	___	3.	The risk of developing lung cancer increases the more deeply that a smoker inhales.
___	___	4.	If a woman stops smoking the last month of pregnancy, she has less chance of delivering a stillborn baby than if she continued to smoke.
___	___	5.	One out of every three deaths from cancer is related to cigarette smoking.
___	___	6.	About 10% of all hospital and medical costs in the United States are related to tobacco.
___	___	7.	If a person does not smoke for 10 to 15 years, that person's chances of developing lung cancer are the same as a nonsmoker's chances.
___	___	8.	Carbon monoxide increases the amount of oxygen in the blood.
___	___	9.	Pipe and cigar smokers are more likely than nonsmokers to develop lung cancer.
___	___	10.	Cigarette smokers are twice as likely as nonsmokers to die of coronary heart disease.

TRUE	FALSE		
____	____	11.	Smokers of non-filter cigarettes inhale more carbon monoxide than smokers of filter cigarettes.
____	____	12.	Smokers of low-tar and low-nicotine cigarettes have lower death rates than smokers of high-tar and high-nicotine cigarettes.
____	____	13.	Cigarette smoking does not change the risk associated with exposure to dangerous materials such as asbestos.
____	____	14.	Cigarette smokers are 25 times more likely than nonsmokers to develop lung cancer.
____	____	15.	Most people gain weight when they quit smoking.
____	____	16.	Nicotine causes the heart to beat faster.
____	____	17.	Millions of workdays are lost each year because of diseases related to cigarette smoking.
____	____	18.	The health risks associated with smoking remain the same even after a person stops smoking.
____	____	19.	The risk of developing coronary heart disease increases with the number of cigarettes smoked.
____	____	20.	Pipe smokers who inhale while they smoke are at the same risk of developing lung cancer as pipe smokers who do not inhale.

SCORING KEY

SMOKING AND ITS EFFECTS

Item	Answer
1	F
2	F
3	T
4	F
5	T
6	T
7	T
8	F
9	T
10	T
11	T
12	T
13	F
14	F
15	F
16	T
17	T
18	F
19	T
20	F

FACTS ABOUT SMOKING

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Consequences of Smoking

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with statements about health, social, and economic consequences of smoking. Children indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 167-174.

FACTS ABOUT SMOKING

This test has 15 sentences. Read each one. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.

TRUE	FALSE		
___	___	1.	Cigarettes that are low in tar and nicotine are probably not harmful.
___	___	2.	Regular smokers usually do not feel nervous when they first stop smoking.
___	___	3.	Tar in cigarettes is harmless to people.
___	___	4.	People who smoke are more likely to have a heart attack than people who don't smoke.
___	___	5.	Low-tar cigarettes are safe to smoke.
___	___	6.	People who smoke have more friends because they smoke.
___	___	7.	Teenagers are more likely to smoke if they have more smokers than nonsmokers as friends.
___	___	8.	Children whose parents smoke have the same number of coughs and colds as other children.
___	___	9.	Nicotine makes the blood vessels smaller.
___	___	10.	People who smoke are generally in poorer health than people who do not smoke.
___	___	11.	Nicotine makes the heart beat faster.
___	___	12.	People who smoke usually cough a lot.
___	___	13.	Cigarette smoke in the air is probably safe to people who breathe it.
___	___	14.	Smoking can leave a bad smell on a person's breath.
___	___	15.	People who smoke usually have trouble breathing.

SCORING KEY

FACTS ABOUT SMOKING

Item	Answer
1	F
2	F
3	F
4	T
5	F
6	F
7	T
8	F
9	T
10	T
11	T
12	T
13	F
14	T
15	T

SITUATIONAL CONTROL TECHNIQUES

TYPE OF MEASURE: Knowledge

OUTCOME ASSESSED: Utilization of Situational Control Techniques

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements describing either smoking cues or nonsmoking responses designed to control smoking behavior. Individuals indicate whether each statement is true or false.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 175-182.

SITUATIONAL CONTROL TECHNIQUES

This test consists of 20 statements about controlling smoking habits. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.

TRUE	FALSE		
____	____	1.	Meditation is an effective nonsmoking behavior for smoking cues triggered by a desire to relax.
____	____	2.	Chewing sugarless gum is an effective nonsmoking behavior for smoking cues triggered by feelings of tension and anger.
____	____	3.	The number of smoking cues that trigger a person's urge to smoke will rarely increase during an effort to stop smoking.
____	____	4.	Understanding one's smoking pattern means being aware of those situations, times, and places that trigger an urge to smoke.
____	____	5.	Different people may have different smoking cues.
____	____	6.	The use of rewards to reinforce non-smoking behavior usually doesn't work.
____	____	7.	Eating low calorie foods is an effective nonsmoking behavior for smoking cues triggered by a desire for physical stimulation.
____	____	8.	A particular nonsmoking behavior suggested for overcoming a smoking cue usually works effectively for all smokers.
____	____	9.	Brisk walking is an effective nonsmoking behavior for smoking cues triggered by a desire for physical stimulation.

TRUE	FALSE		
___	___	10.	A person's smoking habit consists of that person's response to various smoking cues.
___	___	11.	Nonsmoking behaviors are actions designed to reinforce smoking cues.
___	___	12.	Changing routine activities is an effective nonsmoking behavior for overcoming smoking cues in the everyday environment.
___	___	13.	Smoking cues exist either within a person or as a part of the environment.
___	___	14.	Smoking is a habit that occurs only when the individual thinks about it.
___	___	15.	Taking a cool shower is an effective nonsmoking behavior for overcoming smoking cues in the everyday environment.
___	___	16.	A person can use the same nonsmoking behaviors to deal with urges set off by several different smoking cues.
___	___	17.	Effective nonsmoking behaviors should satisfy a person's urge to smoke.
___	___	18.	A nonsmoking behavior is most effective if it is an activity commonly associated with smoking.
___	___	19.	Eating sugarless candy is an effective nonsmoking behavior for smoking cues triggered by a desire for oral gratification.
___	___	20.	Doing deep breathing exercises is an effective nonsmoking behavior for smoking cues triggered by a desire to do something with one's hands.

SCORING KEY

SITUATIONAL CONTROL TECHNIQUES

Item	Answer
1	T
2	F
3	F
4	T
5	T
6	F
7	F
8	F
9	T
10	T
11	F
12	T
13	T
14	F
15	F
16	T
17	T
18	F
19	T
20	F

BREAKING SMOKING HABITS

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Responding to Smoking Cues

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with brief descriptions of fictitious persons experiencing commonly-occuring smoking cues. They are to select from among possible courses of action the most healthy and effective way to handle each particular cue. The correct course of action will respond to the smoking cue present in the situation with an appropriate nonsmoking response.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 183-186.

BREAKING SMOKING HABITS

This test presents descriptions of people who want to break their smoking habits. Each person is trying to use situational control techniques to deal with specific smoking cues. Read each description. Then circle the letter of the best action for the individual to take.

1. Angela usually smokes while she is drinking a cup of coffee with breakfast. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Take several deep breaths before starting to eat.

   B. Stay at the table for a few minutes after breakfast.

   C. Drink a beverage other than coffee with breakfast.

   D. Skip breakfast and have a cup of coffee later.

2. At least once a day, Danny smokes a cigarette because it tastes so good. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Have something like raw vegetables or a piece of gum available to chew.

   B. Sit quietly for a few minutes whenever the urge to smoke occurs.

   C. Wait for half an hour after first wanting the cigarette before smoking it.

   D. Have something like a pencil or some paper clips available to handle.

3. Rhonda likes to smoke when she is out with friends. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Take part in some physical activities.

   B. Get together with her friends in places where smoking is not allowed.

C. Carry only a few cigarettes when getting together with friends.

D. Meet her friends a half hour later than usual for several weeks.

4. One of the reasons Raymond smokes is because of the pleasure he gets from lighting a cigarette and watching the smoke rise. The most healthy and effective way to handle this particular smoking cue would be to:

A. Switch the brand of cigarettes he is smoking for a while.

B. Review health-related reasons for not smoking.

C. Rearrange the furniture in the rooms where he usually smokes.

D. Work on a hobby that requires use of the eyes and the hands.

5. Sandy frequently smokes a cigarette at the end of a meal. The most healthy and effective way to handle this particular smoking cue would be to:

A. Read a book or magazine during the meal.

B. Leave the table immediately after eating and start another activity.

C. Take several deep breaths throughout the meal.

D. Have an extra dessert as a reward for not smoking.

6. Miguel smokes because of the good taste that comes from puffing a cigarette and exhaling the smoke. The most healthy and effective way to handle this particular smoking cue would be to:

A. Take a warm shower to help relax.

B. Have something readily available to chew, such as sugarless gum.

C. Light a cigarette, but do not inhale the smoke.

D. Read an interesting book.

7. Pamela frequently smokes when she is feeling tense or anxious. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Learn a relaxation routine such as deep breathing.

   B. Spend as much time as possible in places where smoking is not allowed.

   C. Ease her tension by smoking only half a cigarette.

   D. Tackle tension-producing activities at different times each day.

8. Denise often copes with anger or frustration by smoking a cigarette. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Have a craft project readily available.

   B. Smoke during the odd or even hours of the day only.

   C. Chew gum or eat sugarless candy.

   D. Sit quietly for a few minutes and meditate.

9. Kevin smokes cigarettes to help him wake up in the morning. The most healthy and effective way to handle this particular smoking cue would be to:

   A. Place his alarm clock across the room.

   B. Wait until after breakfast to have his first cigarette.

   C. Do some physical exercise such as stretching or deep breathing.

   D. Rearrange the furniture in his bedroom.

10. Mark smokes to maintain his energy level during the day. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Take a few minutes to stretch or jog in place.

    B. Drink soft drinks or eat candy.

    C. Picture himself as a nonsmoker.

    D. Plan his day so that tiring tasks are scheduled in the morning.

11. At the end of a day, Maria smokes a cigarette to help her relax. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Change to a brand of cigarettes that is not as tasty.

    B. Eat a low-calorie bedtime snack.

    C. Take a warm bath or shower.

    D. Do her errands at the end of the day.

12. Jimmy finds smoking with wine or beer at parties very enjoyable. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Drink a non-alcoholic beverage such as fruit juice or soda water.

    B. Eat snack foods such as nuts, potato chips, or candy.

    C. Get some physical exercise before going to parties.

    D. Attend parties on the weekends only.

13. Liza usually smokes when she is upset. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Chew sugarless gum.

    B. Practice deep breathing exercises.

    C. Take a pill to help calm her nerves.

    D. Leave the room whenever she gets upset.

14. Roger smokes in order to feel comfortable and relaxed. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Think about the diseases that may be caused by smoking.

    B. Smoke a cigarette without inhaling the smoke.

    C. Move his favorite chair to another room in the house.

    D Listen to soothing music.

15. Vickie smokes when she feels tired and low on energy. The most healthy and effective way to handle this particular smoking cue would be to:

    A. Go to bed early to get more rest.

    B. Avoid leisure activities that are associated with smoking.

    C. Take a brisk walk to get some fresh air.

    D. Smoke several cigarettes so that the experience becomes unpleasant.

SCORING KEY

BREAKING SMOKING HABITS

Item	Answer
1	C
2	A
3	B
4	D
5	B
6	B
7	A
8	D
9	C
10	A
11	C
12	A
13	B
14	D
15	C

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Unhealthy = a response that is unhealthy

No impact = a response that has no direct impact on the smoking cue

	UNHEALTHY	NO IMPACT
1.	D	A & B
2.	C	B & D
3.	C	A & D
4.	A	B & C
5.	D	A & C
6.	C	A & D
7.	C	B & D
8.	B	A & C
9.	B	A & D
10.	B	C & D
11.	A	B & D
12.	B	C & D
13.	C	A & D
14.	B	A & C
15.	D	A & B

SMOKING AND ASSERTIVENESS

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Assertiveness in Relation to Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with descriptions of fictitious person experiencing discomfort due to the presence of others who are smoking or offering smoking materials. Individuals are asked to select from among possible options a course of action that incorporates assertiveness techniques or to indicate that none of the suggested options is appropriate.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 187-189.

SMOKING AND ASSERTIVENESS

This test presents descriptions of people who feel uncomfortable because others are smoking or asking them to smoke. Each person wants to deal with the problem by using assertiveness techniques.

Read each item. Then circle the letter of the action which describes an assertive response to the situation described. If there is no assertive response presented, circle choice D, "None of the above."

1. Carol is watching television with her husband and he is smoking. Carol has been trying to stop smoking, but the smell of her husband's cigarette smoke is weakening her will power. To act assertively, Carol should:

   A. Ask her husband if he would smoke fewer cigarettes while they are together.

   B. Ask her husband if he would smoke in another room.

   C. Move to where she can sit near an open window and breathe fresh air rather than cigarette smoke.

   D. None of the above.

2. George and Susan are spending an evening together. After dinner, Susan suggests that they relax by the fire with after dinner drinks and cigarettes. To act assertively, George should:

   A. Tell Susan that he doesn't want to smoke.

   B. Tell Susan that he has a better idea and ask her to go for a walk.

   C. Hold a lighted cigarette without actually smoking it.

   D. None of the above.

3. Ann has recently stopped smoking, but she finds it hard to control her desire to smoke at the end of a meal. She is at lunch with Bob, a good friend, who prepares to light a cigarette as soon as their plates are cleared from the table. To act assertively, Ann should:

   A. Tell the waiter that it's hard for her to resist smoking when someone else is smoking.

   B. Ask Bob to please wait to smoke until she has left.

   C. Order a dessert to help her ignore Bob's smoking.

   D. None of the above.

4. When Alan decided to quit smoking, he searched his possessions and threw away all the cigarettes he found. His wife Paula still smokes, and she leaves her cigarettes scattered all over the house. To act assertively, Alan should:

   A. Ask Paula if she would keep her cigarettes some place where he can't find them.

   B. Throw away any of Paula's cigarettes that he finds lying around.

   C. Ask Paula if she would smoke only cigarette brands that he does not particularly enjoy.

   D. None of the above.

5. While John and several of his friends are watching a football game on television, a pack of cigarettes is passed around. When everyone except John takes a cigarette, one friend wonders aloud if John is ever going to grow up. To act assertively, John should:

   A. Take a cigarette but not light it.

   B. Tell his friends to put out their cigarettes because they are dumb to smoke.

   C. Ignore the comment and concentrate on the football game.

   D. None of the above.

6. While at a party, Mark is talking with Ruth, an old friend. Ruth knows that Mark is trying to stop smoking, so she decides to offer Mark a cigarette to test his will power. To act assertively, Mark should:

   A. Tell Ruth that she has much less will power than he does.

   B. Accept the cigarette, saying that he will smoke it later.

   C Inform Ruth that he no longer smokes.

   D. None of the above.

7. Nancy is on a date with Tom. To impress her, Tom lights two cigarettes and offers Nancy one, saying that she will look sexy if she smokes a cigarette. To act assertively, Nancy should:

   A. Change the subject by asking Tom whether he thinks her new hairdo is attractive.

   B. Take the cigarette he offers, then hold it in her hand without smoking it for a few minutes.

   C. Turn down the offer, saying she doesn't enjoy smoking.

   D. None of the above.

8. Jim has just moved into a new neighborhood. He wants to be accepted by the other young people there. They tell Jim that he will have to smoke a pack of cigarettes without stopping before he can be admitted to their crowd. To act assertively, Jim should:

   A. Keep the crowd entertained with stories about the activities at his last school.

   B. Smoke the pack of cigarettes, inhaling as little as possible and putting out each cigarette as quickly as he can.

   C. Tell the crowd that he does not smoke because it is unhealthy.

   D. None of the above.

9. David is waiting to see his lawyer. Another man who is seated in the waiting room is smoking one cigarette after another, and the smoke is beginning to irritate David's eyes. To act assertively, David should:

   A. Close his eyes to reduce the amount of irritation from the smoke.

   B. Tell the man that the smoke is irritating his eyes and ask if he would stop smoking or go outside.

   C. Complain to the receptionist about how smoky the waiting room is getting, using a voice loud enough for the smoker to hear.

   D. None of the above.

10. Louise is standing in line at the market, waiting to check out. The woman behind her lights a cigarette and the smoke blew into Louise's face. To act assertively, Louise should:

   A. Tell the woman that she is inconsiderate.

   B. Ask the woman if she would blow the smoke in the other direction.

   C. Move to another checkout line.

   D. None of the above.

11. Michael, who does not smoke, pretended to smoke a cigarette as part of his role in a play. Afterwards, his girlfriend Jane tells him that smoking made him look more attractive. She asks him to have a cigarette at a party. To act assertively, Michael should:

   A. Tell Jane that he doesn't want to smoke in order to create an "image."

   B. Accept the cigarette and hold it but refrain from actually smoking it.

   C. Pretend that he didn't hear her and ask Jane if she would like to dance.

   D. None of the above.

12. Freida gets on a crowded elevator at the 12th floor of an office building. Someone smoking a cigarette gets on at the 10th floor, and Freida finds the smoke extremely annoying. To act assertively, Freida should:

    A. Make a point of coughing loudly and fanning the smoke away from her face.

    B. Get off at the next floor and wait for another elevator.

    C. Ask if the smoker would put out the cigarette as it is bothering her.

    D. None of the above.

13. Daniel shares a small, poorly ventilated office with Jean. Although smoking is not allowed in the office, Jean smokes heavily. To act assertively, Daniel should:

    A. Ask to be transferred to another department where he can work with a nonsmoker.

    B. Ask Jean if she would smoke less often.

    C. Ask Jean if she would go to the smoking area to smoke.

    D. None of the above.

14. Gwen does not smoke. Whenever her neighbor Mildred comes over to visit, she always lights a cigarette as soon as she sits down. To act assertively, Gwen should:

    A. Ask Mildred not to smoke in her house.

    B. Ask Mildred to sit by an open window when she smokes.

    C. Ignore the smoking, in the interest of maintaining their friendship.

    D. None of the above.

15. Bruce is taking a final exam. He is having a hard time working because the person next to him is smoking. To act assertively, Bruce should:

    A. Tell the person that he will be reported to the test administrator if he doesn't stop smoking.

    B. Say nothing but try harder to concentrate on the exam rather than the smoke.

    C. Ask the person to see if he can smoke fewer cigarettes for the rest of the exam period.

    D. None of the above.

SCORING KEY

SMOKING AND ASSERTIVENESS

Item	Answer
1	B
2	A
3	B
4	A
5	D
6	C
7	C
8	C
9	B
10	D
11	A
12	C
13	C
14	A
15	D

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Passive = a passive response

Aggressive = an aggressive response

Acquiescent = an acquiescent response

Non-confrontational = a non-confrontational response

None of the above = a correct response was provided

	PASSIVE	AGGRESSIVE	ACQUIESCENT	NON-CONFRONTATIONAL	NONE OF THE ABOVE
1.	-	-	-	A & C	D
2.	-	-	C	B	D
3.	C	-	-	A	D
4.	-	B	-	C	D
5.	C	B	A	-	-
6.	-	A	B	-	D
7.	-	-	B	A	D
8.	-	-	B	A	D
9.	A	-	-	C	D
10.	-	A	-	B & C	-
11.	-	-	B	C	D
12.	-	-	-	A & B	D
13.	-	-	-	A & B	D
14.	C	-	-	B	D
15.	B	A	-	C	-

COMMUNICATING ABOUT SMOKING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Communication Techniques

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with descriptions of fictitious persons who want either to express their feelings about their efforts to stop smoking or to request assistance with their stop smoking efforts. Individuals are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message, or to indicate that none of the suggested statements is appropriate.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 190-193.

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COMMUNICATING ABOUT SMOKING

This test presents descriptions of people who are trying to stop smoking. They each have a message about smoking that they want to communicate to another individual.

Read each item. Then circle the letter of the choice that expresses the person's message clearly and directly. If there is no clear and direct response presented, circle choice D, "None of the above."

1. Michael wants to communicate to his friend that he gets nervous and has a hard time not smoking while driving through heavy traffic. The most clear and direct way for Michael to say this is:

   A. "I get really anxious when I have to drive in heavy traffic."

   B. "I get very nervous driving in heavy traffic and it's really hard not to smoke."

   C. "I can't possibly drive home through this traffic without smoking at least one cigarette."

   D. None of the above.

2. Martha feels depressed when she thinks about quitting smoking and giving up the pleasure she gets from cigarettes. The most clear and direct way for Martha to say this is:

   A. "You know how I feel about quitting cigarettes and giving up the pleasure of smoking."

   B. "I'm sure everyone feels sad when they think about giving up the pleasure of smoking."

   C. "I get depressed when I realize I'll have to go without the pleasure of smoking."

   D. None of the above.

3. Reggie wants to tell his wife that he feels good about himself because he didn't smoke when he was with some friends who were smoking. The most clear and direct way for Reggie to say this is:

   A. "I feel good about myself because I didn't smoke even though I was out with a group of smokers."

   B. "I realize how foolish my friends are when I'm not smoking and they still are."

   C. "You can imagine how I feel after going without a cigarette for the whole evening."

   D. None of the above.

4. Joyce wants to tell her husband that she feels happy about being able to turn down a cigarette that was offered to her during an important interview. The most clear and direct way for Joyce to say this is:

   A. "Now I'll never again have to worry about taking a cigarette when I'm in a tight spot."

   B. "You know what it means to me to have turned down that cigarette during the interview."

   C. "They offered me a cigarette during the interview and I turned it down."

   D. None of the above.

5. Mark wants to tell his friend that he feels deprived when he goes without his usual after dinner cigarette. The most clear and direct way for Mark to say this is:

   A. "Everyone knows that a good meal isn't really complete unless you can have a cigarette afterwards."

   B. "I feel like I've missing something special when I don't have a cigarette after a good meal."

   C. "I'll always need to have a cigarette after dinner or else I won't be able to enjoy the meal."

   D. None of the above.

6. Janice wants to ask her roommate not to smoke when they watch television together in the evenings. Seeing her roommate smoke makes it hard for Janice to keep from smoking. The most clear and direct way for Janice to say this is:

   A. "It's not very considerate of you to smoke in front of me when you know I'm trying to quit."

   B. "You can imagine how difficult it is for me not to smoke if you smoke while we watch television."

   C. "I'm uncomfortable when I watch television with you."

   D. None of the above.

7. Bruce sometimes asks James for a cigarette when he feels a strong urge to smoke. In order to quit smoking, he now wants to ask James to refuse to give him cigarettes, even if he should ask for them. The most clear and direct way for Bruce to say this is:

   A. "Please don't give me cigarettes because you know how it is when you're trying to fight the urge to smoke."

   B. "When people try to quit smoking, it helps if their friends refuse to give them cigarettes."

   C. "Please help me quit smoking by not giving me any more cigarettes, even if I ask for them."

   D. None of the above.

8. Geraldine wants to ask her husband to help her stop smoking by keeping track of the number of cigarettes she smokes when they are together. The most clear and direct way for Geraldine to say this is:

   A. "I would like you to help me smoke less by keeping track of the cigarettes I smoke when we're together."

   B. "Please help me stop smoking."

C. "If you really care about my health, you'll help me keep track of how much I smoke."

D. None of the above.

9. Steve wants to ask his wife to help him stop smoking by not smoking in front of him at the table after dinner. The most clear and direct way for Steve to say this is:

A. "You're not being very sensitive to my needs if you continue to smoke at the dinner table."

B. "People can't be expected to quit smoking when others light up right in front of them at the dinner table."

C. "I think we can make our mealtime more enjoyable."

D. None of the above.

10. Susan has a difficult time keeping from smoking when she goes to a party and sees her friends smoking. The most clear and direct way for Susan to say this is:

A. "True friends wouldn't smoke when I'm around."

B. "You can tell how uncomfortable I feel at parties when I'm around smokers."

C. "I have a hard time not smoking when I see my friends smoking at a party."

D. None of the above.

11. Eddie is trying to quit smoking. He feels anxious when he goes bowling because all the other members of his bowling team smoke. The most clear and direct way for Eddie to say this is:

A. "I feel uncomfortable when I go bowling now."

B. "I feel nervous when I go bowling with my friends because they all smoke."

C. "I guess I'll just have to smoke when I go bowling."

D. None of the above.

12. Julie feels good about not smoking while talking to her friend on the telephone. The most clear and direct way for Julie to say this is:

    A. "I'm happy that I haven't smoked while I've been talking on the telephone."

    B. "You can imagine how happy I am about not smoking while I've been on the telephone."

    C. "Not many people can talk on the telephone without smoking."

    D. None of the above.

13. Roger is pleased that he has learned to use relaxation skills instead of having a cigarette when he's upset about work. The most clear and direct way for Roger to say this is:

    A. "I'm really glad that I've learned how to relax."

    B. "People should use relaxation, instead of cigarette smoking, as a way to deal with their anger."

    C. "I'm happy that I've learned to replace cigarette smoking with relaxation when I'm upset about work."

    D. None of the above.

14. Maureen is trying to stop smoking and is upset because her friend often offers her a cigarette. The most clear and direct way for Maureen to say this is:

    A. "You're really unkind to offer me a cigarette when I'm trying to stop smoking."

    B. "People shouldn't offer cigarettes to others who are trying to stop smoking."

    C. "I am angry with you."

    D. None of the above.

15. Denise is happy because she has learned to knit instead of smoke cigarettes when she watches television. The most clear and direct way for Denise to say this is:

A. "I won't ever need to smoke again."

B. "I'm pleased that I've been able to replace smoking with knitting when I watch television."

C. "I'm sure you can understand how happy I am about not smoking while watching television."

D. None of the above.

SCORING KEY

COMMUNICATING ABOUT SMOKING

ANSWER KEY

Item	Answer	Item	Answer
1	B	9	D
2	C	10	C
3	A	11	B
4	D	12	A
5	B	13	C
6	D	14	D
7	C	15	B
8	A		

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Overgeneralized - a response that extends a single experience to all experiences or always associates a particular behavior with certain circumstances.

Crystal Ball - a response in which the assumption is made that the receiver already knows the sender's feelings or the content of the message.

Judgment - a response that blames or criticizes.

Incomplete - a response that does not provide all the information needed to send a complete message.

None of the above - a response that indicates that there is no correct answer when there is a correct answer.

	Overgeneralized	Crystal Ball	Judgment	Incomplete	None of the above
1	C			A	D
2	B	A			D
3		C	B		D
4	A	B		C	
5	A, C				D
6		B	A	C	
7	B	A			D
8			C	B	D
9	B		A	C	
10		B	A		D
11	C			A	D
12	C	B			D
13	B			A	D
14	B		A	C	
15	A	C			D

TALKING ABOUT SMOKING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Communication Techniques

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

Children are presented with descriptions of fictitious persons who want either to express their feelings about not smoking or to tell others that they don't wish to smoke. Children are to select from among three statements the one that most clearly and directly communicates the fictitious person's message.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 194-196.

TALKING ABOUT SMOKING

This test is about young people who want to tell how they feel about smoking cigarettes. Read about each person. Then choose the most clear and direct way of saying what the person wants to tell. Circle the letter of this choice.

1. Mark and Bill are walking home from school together. Bill finds a pack of cigarettes and asks Mark to smoke some with him. Mark wants to tell Bill that he doesn't want to smoke the cigarettes. The most clear and direct way for Mark to say this is:

   A. "You know I don't like to smoke cigarettes."

   B. "You must be crazy if you think I want to smoke cigarettes with you."

   C. "I really don't want to smoke cigarettes."

2. Mike wants to tell his father that he feels good about not smoking at a party, even though his friends were smoking. The most clear and direct way for Mike to say this is:

   A. "I didn't smoke at the party."

   B. "I feel great because I didn't smoke, even though my friends were smoking at the party."

   C. "You can imagine how good I feel about not smoking at a party where my friends were smoking."

3. Kathy and Jane are at the movies. Jane asks Kathy to smoke a cigarette to see if they can get away with it. Kathy wants to tell Jane that she is not interested in smoking at the movies. The most clear and direct way for Kathy to say this is:

   A. "I don't want to smoke in here."

   B. "People shouldn't smoke in the movies because it's not allowed."

   C. "Smoking in the movies is dumb."

4. Marsha wants to tell her friend that she is proud of herself for not even wanting to smoke cigarettes. The most clear and direct way for Marsha to say this is:

   A. "People who don't smoke cigarettes should feel good about themselves."

   B. "I feel good about myself because I'm not interested in smoking cigarettes."

   C. "I don't even want to smoke cigarettes."

5. Louis has been invited to a party where he thinks that other people might be smoking. He wants to tell his brother that he's worried about the others making fun of him for not smoking. The most clear and direct way for Louis to say this is:

   A. "I'm worried about going to that party."

   B. "I guess I'll always be afraid that people will make fun of me for not smoking."

   C. "I'm afraid that the other people at the party will laugh at me because I don't smoke cigarettes."

6. Marilyn thinks it will be fun to smoke cigarettes with her sister Karen after their parents are asleep. Karen wants to tell Marilyn that she won't smoke because she doesn't like it. The most clear and direct way for Karen to say this is:

   A. "I don't want to smoke because I don't enjoy it."

   B. "If you think smoking is fun, you must not have much excitement in your life."

   C. "I don't think smoking is that much fun."

7. Valerie wants to tell her mother that she feels bad because some of her classmates called her names when she didn't take a puff from a cigarette they found. The most clear and direct way for Valerie to say this is:

   A. "I don't like to be called names."

B. "I feel bad because some of my classmates called me names for not wanting to smoke with them."

C. "You can see how bad I feel about being called names just because I didn't want to smoke."

8. Rosy's friend thinks that they'll look older if they smoke cigarettes. Rosy wants to tell her friend that she doesn't wish to smoke, whether or not it makes her look older. The most clear and direct way for Rosy to say this is:

A. "You're foolish if you think I would smoke cigarettes just to look older."

B. "I don't want to look older."

C. "Even if it does help me look older, I'm not interested in smoking."

9. Nick wants to tell his brother that he feels good because he didn't smoke while he was at a baseball game with some other children who were smoking. The most clear and direct way for Nick to say this is:

A. "I feel good because I didn't smoke at the game even though I was with people who were smoking."

B. "You must be blind not to see how good I feel about not smoking while I was at the game."

C. "People shouldn't smoke even if they're around others who are smoking."

10. Barry wants to tell his mother that he feels nervous because a neighbor said that Barry can be in the neighborhood club only if he smokes cigarettes. The most clear and direct way for Barry to say this is:

A. "I am anxious about what one of the neighbors told me."

B. "I feel anxious because I must smoke cigarettes in order to be in the neighborhood club."

C. "Can't you see how nervous I am about having to smoke in order to be in that club?"

SCORING KEY

TALKING ABOUT SMOKING

Item	Answer
1	C
2	B
3	A
4	B
5	C
6	A
7	B
8	C
9	A
10	B

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation.

Overgeneralized - a response that extends a single experience to all experiences or always associates a particular behavior with certain circumstances.

Crystall Ball - a response in which the assumption is made that the receiver already knows the sender's feelings or the contents of the message.

Judgment - a response that blames or criticizes.

Incomplete - a response that does not provide all the information needed to send a complete message.

	Overgeneralized Message	Crystal Ball Message	Judgment Message	Incomplete Message
1		A	B	
2		C		A
3	B		C	
4	A			C
5	B			A
6			B	C
7		C		A
8			A	B
9	C		B	
10		C		A

RESPONDING TO OTHERS ABOUT SMOKING

TYPE OF MEASURE: Skill

OUTCOME ASSESSED: Interpersonal Relationships: Effective Response Techniques

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

Individuals are presented with statements by fictitious persons. The statements either express a person's feelings about efforts to stop smoking or request assistance with stop smoking efforts. Individuals are to select choose from among four statements the one response that best communicates acceptance and understanding of the fictitious person's situation.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 197-199.

RESPONDING TO OTHERS ABOUT SMOKING

This test presents statements by individuals who want to communicate their feelings about smoking. Read each statement. Then circle the letter of the response that best communicates acceptance and understanding of the message.

1. Dan: "I'm trying not to smoke, but I feel left out when I'm with my friends and they are all smoking."

   The response that best communicates acceptance and understanding of Dan's situation is:

   A. "You should probably find a new group of friends who are nonsmokers."

   B. There's no reason to feel left out just because you're not smoking and others are."

   C. "You feel left out when people around you are smoking and you are not."

   D. "You smoke in order to be accepted by others."

2. Doris: "I'm pleasantly surprised to find I can still enjoy a cup of coffee even if I'm not smoking a cigarette."

   The response that best communicates acceptance and understanding of Doris' situation is:

   A. "It was foolish of you to assume that your enjoyment of coffee depended on smoking a cigarette."

   B. "You're pleased to find out that quitting smoking hasn't changed your enjoyment of coffee."

   C. "The next thing you should try is going without an after dinner cigarette."

   D. "Smoking is still bad for you unless you give it up completely."

3. Patrick: "I feel like I can't start the day if I don't have my morning cigarette."

The response that best communicates acceptance and understanding of Patrick's situation is:

A. "You know you don't need a cigarette to start your day."

B. "You should get out of bed and run around the block to wake up in the morning."

C. "If you give in to your urge to smoke in the morning, you'll be right back where you started."

D. "You find it difficult to start the day when you go without smoking a cigarette."

4. Janet: "I get nervous and feel as if I need something to do when I'm at a party now that I don't smoke."

The response that best communicates acceptance and understanding of Janet's situation is:

A. "You get nervous at social gatherings since you quit smoking."

B. "You used to use smoking as a crutch and hide your nervousness behind a cigarette."

C. "Try eating something to keep your mind off of smoking."

D. "You never should have smoked at parties in the first place."

5. Kenneth: "I used to think that smoking during my work breaks helped me relax, but now that I've quit smoking I go back to work even more relaxed."

The response that best communicates acceptance and understanding of Kenneth's situation is:

A. "The next thing you should do is try to stop smoking at home."

B. "The problem was that you jumped to the conclusion that smoking helped you to relax."

C. "It's ridiculous to think that smoking can help a person relax."

D. "You've found out that by giving up smoking at work you've made your breaks even more relaxing."

6. Paula: "I would like to spend the evening at home tonight because if we go out with our friends who smoke, I'll want to smoke too."

The response that best communicates acceptance and understanding of Paula's situation is:

A. "You don't have enough will power around people who smoke."

B. "You feel that around smokers, you'll get an urge to smoke, so tonight you'd rather we stayed home."

C. "There's no reason for you to smoke, even if your friends are."

D. "You'll be sorry if you let our friends tempt you to start smoking again."

7. Robert: "Whenever I see your cigarettes lying around the apartment, I'm tempted to smoke one."

The response that best communicates acceptance and understanding of Robert's situation is:

A. "You are tempted to smoke when you see cigarettes."

B. "Go to a different room when you see cigarettes lying around."

C. "Think about how dangerous smoking is whenever you feel the urge to smoke."

D. "You can't be serious about quitting if you're tempted to smoke every time you see a cigarette package."

8. Alan: "You could be very helpful by refusing to give me a cigarette tonight at the party, even if I ask you for one."

The response that best communicates acceptance and understanding of Alan's situation is:

A. "You don't need my help to keep you from smoking tonight."

B. "Stay away from all the smokers at the party tonight."

C. "You'll be sorry if you just rely on me to keep you from smoking."

D. "You want me to help you tonight by turning down your requests for cigarettes."

9. Gwen: "When you light a cigarette, the smell of the smoke makes me want a cigarette."

The response that best communicates acceptance and understanding of Gwen's situation is:

A. "If you give in even once, it will be harder to resist the next time."

B. "When you smell the smoke, just tell yourself that cigarettes don't taste as good as they smell."

C. "You feel as if you would like a cigarette when you smell my cigarette smoke."

D. "There's no reason for you to want a cigarrete just because I'm having one."

10. Marcia: "Whenever I go to lunch with my friends, I have a hard time not smoking because they all smoke."

The response that best communicates acceptance and understanding of Marcia's situation is:

A. "Go to lunch with nonsmokers."

B. "You find it hard to avoid smoking when your friends smoke at lunch."

C. "You should try not to go to lunch with those friends."

D. "You must need approval from your friends if you need to smoke when they do."

11. Tom: "I've been happier since I started taking walks after dinner instead of smoking."

The response that best communicates acceptance and understanding of Tom's situation is:

A. "You feel better since you've replaced cigarette smoking after dinner with walking."

B. "You're happier because walking is good exercise."

C. "It's good that you've stopped smoking after dinner because smoking can cause cancer."

D. "Find someone to walk with you because it will be more fun that way."

12. Robin: "I'm having a hard time quitting smoking because the only way I can relax is to smoke a cigarette."

The response that best communicates acceptance and understanding of Robin's situation is:

A. "Smoking in order to relax is a bad habit."

B. "You don't understand what relaxation is."

C. "Don't let yourself smoke when you're upset."

D. "It's tough for you to give up smoking because you feel you need to smoke in order to relax."

13. Michael: "I feel great about myself because I didn't smoke a single cigarette when we were playing golf today."

The response that best communicates acceptance and understanding of Michael's situation is:

A. "You should have had the sense to quit long ago."

B. "The main reason you have been smoking is because your friends smoke."

C. "You're pleased because you were able to avoid smoking while playing golf."

D. "I hope you never smoke again because it is so bad for your health."

14. Mary: "I'm pleasantly surprised that I was able to go a party and not smoke a single cigarette."

The response that best communicates acceptance and understanding of Mary's situation is:

A. "You're pleased that you were able to avoid smoking at a party."

B. "You're happy because you finally gave up your bad habit."

C. "You used to smoke at parties because of the social pressure you felt."

D. "Keep it up and don't ever smoke at a party again."

15. Jim: "I'm angry because the people in my car pool smoke even though I've asked them not to."

The response that best communicates acceptance and understanding of Jim's situation is:

A. "The people that you ride with must be very inconsiderate."

B. "You're upset because the people in your car pool continue to smoke even though you asked them not to."

C. "Ask them again not to smoke."

D. "You probably didn't ask them in the right way."

SCORING KEY

RESPONDING TO OTHERS ABOUT SMOKING

Item	Answer	Item	Answer
1	C	9	C
2	B	10	B
3	D	11	A
4	A	12	D
5	D	13	C
6	B	14	A
7	A	15	B
8	D		

INCORRECT ANSWER CHOICE ANALYSES

The incorrect answer choices for each item are listed below using the following method of annotation:

Directing - a response that tells or suggests to the message sender what to do

Warning - a response that warns the message sender what might happen

Criticizing/Disagreeing - a response that criticizes or disagrees with the message sender

Diagnosing - a response that suggests an explanation for the message sender's statement

	Directing	Warning	Criticizing/ Disagreeing	Diagnosing
1	A		B	D
2	C	D	A	
3	B	C	A	
4	C		D	B
5	A		C	B
6		D	A, C	
7	B	C	D	
8	B	C	A	
9	B	A	D	
10	A, C			D
11	D	C		B
12	C		A, B	
13		D	A	B
14	D		B	C
15	C		D	A

PEOPLE PROFILES

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Consequences of Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

This measure uses a semantic differential technique in which individuals are asked to describe smokers and nonsmokers, using a series of bipolar adjectives. These adjectives relate to the characteristics of health, aesthetic appeal, athletic ability, and social acceptability.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 200-202.

PEOPLE PROFILES

What are your impressions of Smokers and Nonsmokers? Please respond to each of the two boxed questions below by placing a check in the appropriate place on each scale. The closer a check is to one end of the scale, the better the word or phrase at that end of the scale reflects your impressions.

For example, if you were asked to describe babies, you might respond as follows:

HOW WOULD YOU DESCRIBE BABIES?

Little	____	✓	____	____	____	**Big**
Old	____	____	____	____	✓	**Young**
Fat	____	____	✓	____	____	**Thin**

SECTION I

HOW WOULD YOU DESCRIBE SMOKERS?

Attractive	____	____	____	____	____	Unattractive
Physically Fit	____	____	____	____	____	Physically Unfit
Unappealing	____	____	____	____	____	Appealing
Healthy	____	____	____	____	____	Unhealthy
Not athletic	____	____	____	____	____	Athletic
Unpopular	____	____	____	____	____	Popular
Often Sick	____	____	____	____	____	Often Well
Well Liked	____	____	____	____	____	Not Well Liked

SECTION II

HOW WOULD YOU DESCRIBE NONSMOKERS?

Attractive	____	____	____	____	____	Unattractive
Physically Fit	____	____	____	____	____	Physically Unfit
Unappealing	____	____	____	____	____	Appealing
Healthy	____	____	____	____	____	Unhealthy
Not athletic	____	____	____	____	____	Athletic
Unpopular	____	____	____	____	____	Popular
Often Sick	____	____	____	____	____	Often Well
Well Liked	____	____	____	____	____	Not Well Liked

INSTRUCTIONS FOR SCORING

PEOPLE PROFILES

Point values are assigned to responses according to the following scoring key.

SCORING KEY

HOW WOULD YOU DESCRIBE SMOKERS?

1.	Attractive	1	2	3	4	5	Unattractive
2.	Physically Fit	1	2	3	4	5	Physically Unfit
3.	Unappealing	5	4	3	2	1	Appealing
4.	Healthy	1	2	3	4	5	Unhealthy
5.	Not athletic	5	4	3	2	1	Athletic
6.	Unpopular	5	4	3	2	1	Popular
7.	Often Sick	5	4	3	2	1	Often Well
8.	Well Liked	1	2	3	4	5	Not Well Liked

HOW WOULD YOU DESCRIBE NONSMOKERS?

9.	Attractive	5	4	3	2	1	Unattractive
10.	Physically Fit	5	4	3	2	1	Physically Unfit
11.	Unappealing	1	2	3	4	5	Appealing
12.	Healthy	5	4	3	2	1	Unhealthy
13.	Not athletic	1	2	3	4	5	Athletic
14.	Unpopular	1	2	3	4	5	Popular
15.	Often Sick	1	2	3	4	5	Often Well
16.	Well Liked	5	4	3	2	1	Not Well Liked

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 5 points indicates a strong belief that nonsmokers are healthier, more aesthetically appealing, better able to perform athletically, and more socially accepted than individuals who smoke.

INSTRUCTIONS FOR SCORING (cont.)

PEOPLE PROFILES

In addition to an overall score for this outcome, responses can be considered separately, as follows:

Health

Smoker: Items 4, 7
Nonsmoker: Items 12, 15

Aesthetic Appeal

Smoker: Items 1, 3
Nonsmoker: Items 9, 11

Athletic Performance

Smoker: Items 2, 5
Nonsmoker: Items 10, 13

Social acceptability

Smoker: Items 6, 8
Nonsmoker: Items 14, 16

THINK ABOUT PEOPLE

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Consequences of Smoking

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

This measure is designed to assess children's beliefs about the effects of smoking. Children are presented with one-sentence descriptions of individuals. Each individual is described according to his or her general state of health, aesthetic appeal, athletic performance, or social acceptability. Children are asked to indicate whether they think the person being described smokes or not.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 203-205.

THINK ABOUT PEOPLE

The questions below tell about different people you don't know. Circle the word that shows what you think about a person.

YES = The person probably smokes
MAYBE = Not sure if the person smokes
NO = The person probably does not smoke

YES MAYBE NO 1. Gregg has many friends. Do you think he smokes?

YES MAYBE NO 2. Everybody thinks Alicia is pretty. Do you think she smokes?

YES MAYBE NO 3. Cheryl almost never looks good. Do you think she smokes?

YES MAYBE NO 4. Dwayne feels sick a lot. Do you think he smokes?

YES MAYBE NO 5. Raymond is a very good runner. Do you think he smokes?

YES MAYBE NO 6. Many boys like Denise. Do you think she smokes?

YES MAYBE NO 7. Linda is not healthy. Do you think she smokes?

YES MAYBE NO 8. Girls don't like Kevin. Do you think he smokes?

YES MAYBE NO 9. Keith usually feels healthy. Do you think he smokes?

YES MAYBE NO 10. Lilly is not very good at sports. Do you think she smokes?

YES MAYBE NO 11. Tony has a hard time when he runs. Do you think he smokes?

YES MAYBE NO 12. Lisa has not been sick all year. Do you think she smokes?

YES MAYBE NO 13. The other kids do not like Valerie. Do you think she smokes?

YES MAYBE NO 14. Vickie is good at sports. Do you think she smokes?

YES MAYBE NO 15. Jimmy is the best-looking boy in the class. Do you think he smokes?

YES MAYBE NO 16. Michael does not look as good as the other kids. Do you think he smokes?

INSTRUCTIONS FOR SCORING

THINK ABOUT PEOPLE

Point values are assigned to responses according to the following scoring key.

SCORING KEY

	YES	MAYBE	NO
1.	0	1	2
2.	0	1	2
3.	2	1	0
4.	2	1	0
5.	0	1	2
6.	0	1	2
7.	2	1	0
8.	2	1	0
9.	0	1	2
10.	2	1	0
11.	2	1	0
12.	0	1	2
13.	2	1	0
14.	0	1	2
15.	0	1	2
16.	2	1	0

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 2 points indicates a strong perception of the negative effects of smoking on health, aesthetic appeal, social acceptability, and athletic ability.

In addition to an overall score for this outcome, response can be considered separately as follows:

Health

Males: Items 4, 9
Females: Items 7, 12

Aesthetic Appeal

Males: Items 15, 16
Females: Items 2, 3

Athletic Performance

Males: Items 5, 11
Females: Items 10, 14

Social Acceptability

Males: Items 1, 8
Females: Items 6, 13

REFRAINING FROM SMOKING

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Ability to Refrain from Smoking

TARGET POPULATION: Adults or adolescents (current or former smokers)

GENERAL DESCRIPTION:

This measure is designed to assess individuals' perceived self-efficacy in being able to resist urges to smoke. Individuals are presented with a series of items describing situations in which people often experience an urge to smoke and asked to indicate if they can refrain from smoking in each situation. If individuals indicate that they can refrain, then they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their ability to refrain from smoking in that situation.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 206-208.

REFRAINING FROM SMOKING

This survey describes various times when people often feel an urge to smoke. Read each statement. Circle YES or NO to show if you could refrain or keep from smoking at that time. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	**CAN YOU DO THIS?**	**IF YES, HOW CERTAIN ARE YOU?**
You can lift a 50 pound weight.	**(YES)/NO**	**70**
You can lift a 200 pound weight.	**YES/(NO)**	**____**

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				**Somewhat Certain**					**Very Certain**

		CAN YOU REFRAIN FROM SMOKING?	IF YES, HOW CERTAIN ARE YOU?
1.	You have just finished an enjoyable meal.	YES/NO	_____
2.	You are drinking coffee or tea.	YES/NO	_____
3.	You have been watching television for quite a while.	YES/NO	_____
4.	You are visiting friends, some of whom are smoking.	YES/NO	_____
5.	You have just completed a difficult task, one that has taken you quite a while to finish.	YES/NO	_____
6.	You are having a hard time breathing because the air is polluted.	YES/NO	_____

		CAN YOU REFRAIN FROM SMOKING?	IF YES, HOW CERTAIN ARE YOU?
7.	You are feeling particularly tense and anxious.	YES/NO	_____
8.	You are reading something interesting.	YES/NO	_____
9.	You are talking on the telephone.	YES/NO	_____
10.	You are leaving a movie.	YES/NO	_____
11.	You have just had a big argument with a friend and you are very upset.	YES/NO	_____
12.	You are relaxing after a busy day.	YES/NO	_____
13.	You haven't had a cigarette in a while and someone offers you one.	YES/NO	_____
14.	You are waiting for a very important phone call that is ten to fifteen minutes late.	YES/NO	_____
15.	You are home alone and you start to get bored.	YES/NO	_____
16.	You are at a party and someone offers you a cigarette.	YES/NO	_____
17.	You are at a sporting event such as a ball game.	YES/NO	_____
18.	You are feeling as if you really need to smoke.	YES/NO	_____
19.	You are taking a work break.	YES/NO	_____
20.	You are with a friend who urges you to smoke.	YES/NO	_____

INSTRUCTIONS FOR SCORING

REFRAINING FROM SMOKING

This inventory can be scored in several ways, two of which are described below. The first procedure relies on the YES/NO responses only, providing an easily obtained gross index of perceived ability to refrain from smoking. The second procedure combines the YES/NO responses and the confidence ratings in a single score, providing an index that reflects perceived ability to refrain from smoking across a variety of settings, coupled with the level of confidence manifested in that ability.

ANALYSIS OF YES/NO RESPONSES ONLY

Count the number of YES responses, disregarding the confidence ratings. The maximum score attainable of 20 YES responses represents a strong perceived ability to refrain from smoking in a wide variety of settings.

ANALYSIS COMBINING YES/NO RESPONSES AND CONFIDENCE RATINGS

Total all of the confidence ratings made in conjunction with a "YES" response and divide this sum by 20 (the total number of items in the inventory.) Confidence ratings made in conjunction with a "NO" response should be omitted from the analysis. The maximum score attainable of 100 represents a strong perceived ability to refrain from smoking across a wide variety of settings, along with a high level of confidence in that ability. It should be noted that this scoring procedure assumes a confidence rating of zero for those items to which respondents indicated "NO," meaning that they do not think they are able to refrain from smoking in the situation described.

SMOKING SURVEY

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Intention to Refrain from Smoking

TARGET POPULATION: Adults or adolescents (current or former smokers)

GENERAL DESCRIPTION:

This measure is designed to assess the extent to which individuals intend to refrain from smoking tobacco products. Individuals are asked whether they intend to refrain from smoking during specified future time periods. If individuals indicate that they intend to refrain from smoking for a particular time period, then they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their intention.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 209-211.

SMOKING SURVEY

This survey asks about your intention to refrain or keep from smoking. Read each question, then circle YES or NO. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	**CIRCLE YES OR NO**	**IF YES, HOW CERTAIN ARE YOU?**
Can you lift a 50 pound weight?	**(YES)/NO**	70
Can you lift a 200 pound weight?	**YES/(NO)**	____

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

		CIRCLE YES OR NO	IF YES, HOW CERTAIN ARE YOU?
1.	Do you intend to refrain from smoking for the next 24 hours?	YES/NO	____
2.	Do you intend to refrain from smoking for the next week?	YES/NO	____
3.	Do you intend to refrain from smoking for the next month?	YES/NO	____
4.	Do you intend to refrain from smoking for the next year?	YES/NO	____
5.	Do you intend to refrain from smoking for the rest of your life?	YES/NO	____

INSTRUCTIONS FOR SCORING

SMOKING SURVEY

This inventory can be scored in several ways, two of which are described below. The first procedure relies on the YES/NO responses only, providing an easily obtained gross index of intention to refrain from smoking. The second procedure combines the YES/NO responses and the confidence ratings in a single score, providing an index that reflects intention to refrain from smoking for varied time periods, coupled with the level of confidence manifested in that intention.

ANALYSIS OF YES/NO RESPONSES ONLY

Count the number of YES responses, disregarding the confidence ratings. The maximum score attainable of 5 YES responses represents a strong intention to refrain from smoking for an extended period of time.

ANALYSIS COMBINING YES/NO RESPONSES AND CONFIDENCE RATINGS

Total all of the confidence ratings made in conjunction with a "YES" response and divide this sum by 5 (the total number of items in the inventory.) Confidence ratings made in conjunction with a "NO" response should be omitted from the analysis. The maximum score attainable of 100 represents a strong intention to refrain from smoking for an extended period of time, along with a high level of confidence in that ability. It should be noted that this scoring procedure assumes a confidence rating of zero for those items to which respondents indicated "NO," meaning that they do not think they are able to refrain from smoking for the time period specified.

SMOKING QUESTIONS

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Intention to Refrain from Smoking

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

This measure is designed to assess the extent to which children intend to refrain from smoking cigarettes. Children are asked whether they intend to smoke during specified future time periods. They are to select the response that best describes their future behavior.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 212-213.

SMOKING QUESTIONS

Here are some questions about smoking. Read each one. Then put a check (√) under the answer that best tells what you will do.

		CERTAINLY NOT	PROBABLY NOT	MAYBE	PROBABLY YES	CERTAINLY YES
1.	Will you smoke any cigarettes <u>today</u>?	___	___	___	___	___
2.	Will you smoke any cigarettes <u>this week</u>?	___	___	___	___	___
3.	Will you smoke any cigarettes <u>this month</u>?	___	___	___	___	___
4.	Will you smoke any cigarettes <u>this year</u>?	___	___	___	___	___
5.	Will you <u>ever</u> become a smoker?	___	___	___	___	___

INSTRUCTIONS FOR SCORING

SMOKING QUESTIONS

Point values are assigned to responses according to the following scoring key.

SCORING KEY

CERTAINLY NOT	=	5
PROBABLY NOT	=	4
MAYBE	=	3
PROBABLY YES	=	2
CERTAINLY YES	=	1

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 5 points indicates a strong intention to refrain from smoking.

MY BODY

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Respect for One's Body

TARGET POPULATION: Elementary school children

GENERAL DESCRIPTION:

This measure is designed to assess children's respect for their bodies. Children are asked to indicate whether they would engage in activities which are healthful and avoid activities which are harmful to the body.

ADDITIONAL INFORMATION:

Test specifications for this measure can be found on pages 214-215.

MY BODY

Read each question. Then put a check (✓) under the answer that best tells what you are willing to do to take care of your body.

In order to take care of your body, are you willing to ...	CERTAINLY YES	PROBABLY YES	MAYBE	PROBABLY NOT	CERTAINLY NOT
1. ... exercise several times each week?	___	___	___	___	___
2. ... never drink large amounts of alcohol?	___	___	___	___	___
3. ... do what your doctor tells you to do?	___	___	___	___	___
4. ... never smoke any cigarettes?	___	___	___	___	___
5. ... get immunizations against diseases?	___	___	___	___	___
6. ... get at least 8 hours of sleep every night?	___	___	___	___	___
7. ... see your doctor regularly?	___	___	___	___	___
8. ... not let yourself get too anxious?	___	___	___	___	___
9. ... be careful about what you eat?	___	___	___	___	___
10. ... never take drugs that are not necessary?	___	___	___	___	___

INSTRUCTIONS FOR SCORING

MY BODY

Point values are assigned to responses according to the following scoring key:

SCORING KEY

CERTAINLY YES	=	5
PROBABLY YES	=	4
MAYBE	=	3
PROBABLY NOT	=	2
CERTAINLY NOT	=	1

This inventory can be scored by adding the point value of every response and dividing this sum by the number of responses. The maximum score attainable of 5 points indicates a strong respect for one's body, as evidenced by a willingness to engage in activities which are good for it and to avoid those which are not.

CHAPTER SIX

OTHER MEASURES

This chapter contains all of the previously developed measures that were located as a result of a comprehensive literature search and then identified as corresponding to one of the outcome statements listed in Chapter Four. The process by which existing measures were screened and selected is explained more completely in Chapter Two.

A descriptor page precedes each measure. This page indicates the type of measure (behavioral, knowledge, skill, or affective), the title of the outcome assessed, and the target population for the instrument. A general description is presented, providing an overview of the assessment strategy employed in the measure. The general description also provides information about the manner in which the instrument has previously been used. A technical information section summarizes any psychometric information that has been collected for the instrument. The measure's author(s) are listed. If there is any additional information available about a measure, reference citations are also given.

All of the measures in this chapter have been readied for possible photocopying. Directions to respondents and scoring instructions have been provided whenever they were available.

SMOKING HABITS QUESTIONNAIRE

TYPE OF MEASURE: Behavioral

OUTCOME ASSESSED: Refraining from Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

The Smoking Habits Questionnaire surveys smoking-related behavior. Respondents are asked to indicate if they have ever used, and if they currently use, tobacco products or marijuana. The measure elicits the specific characteristics of any smoking behavior, such as substance, frequency, and topography. In addition, the measure elicits information about attempts to stop smoking and the general health status of the respondent.

TECHNICAL INFORMATION:

The authors report a study in which the measure was administered to 267 individuals, 181 of whom reported no use of tobacco. Responses for selected questions dealing with frequency of smoking were compared to results of blood tests administered subsequent to respondents' completion of the questionnaire. The respondents had not been informed when they completed the questionnaire that blood tests were to be given.

The degree of agreement between questionnaire responses and two physiologic measures (serum thiocyanate and expired carbon monoxide) was substantial, ranging from 64 percent for smokers (based on questionnaire responses) to 100 percent for non-smokers (based on questionnaire responses). The authors report that responses to the questionnaire items were internally consistent.

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ADDITIONAL INFORMATION:

Petitti, D.B., Friedman, G.D., & Kahn, W. Accuracy of information on smoking habits provided on self-administered research questionnaires. American Journal of Public Health, 1981, 71, 308-311.

SMOKING HABITS QUESTIONNAIRE

PLEASE READ THIS FIRST

Today you will be asked to answer more than one set of questions about smoking. This questionnaire is an in-depth survey of smoking habits for a special study of smoking and health. Your answers will be kept confidential. In reports of the study, no individual will be identified. The questionnaire will not be put in your medical record nor sent to your doctor. You need not answer any questions to which you object; refusal to answer will not prejudice your future medical care. If you want more information about the study, ask the person who collects the questionnaire.

IMPRINT AREA

If you have never used any tobacco product (cigarettes, cigars, tobacco pipe, chewing tobacco, snuff), check box below and then skip to questions 41-52.

1 ☐ Never used any tobacco product

If you have ever used any tobacco product (cigarettes, cigars, tobacco pipe, chewing tobacco, snuff), answer questions below, then answer questions 41-52.

1. **Have you ever smoked cigarettes regularly for at least one year?** (Here "regularly" means at least 5 cigarettes per week, almost every week)

   1 ☐ Yes — If Yes, answer questions 2-19 below.
   2 ☐ No — If No, skip to question 20.

2. **How old were you when you started smoking cigarettes regularly?** ___ ___ years old

3. **Do you still smoke cigarettes regularly?**

   1 ☐ Yes
   2 ☐ No, but I still smoke cigarettes occasionally
   3 ☐ No, not at all

4. **If you have stopped smoking cigarettes regularly, how many years ago did you stop?** (If you stopped in the past year, write in 00) ___ ___ years ago

5. **If you have stopped smoking cigarettes regularly, what was the main reason that you stopped?**

   Check only one

   1 ☐ Didn't like it or need it any more
   2 ☐ Expense
   3 ☐ I had symptoms or illness (Specify)_____
   4 ☐ Illness or death of a friend or family member
   5 ☐ Afraid it would cause illness
   6 ☐ Other (Specify)_____

6. **Altogether, how many years have you smoked cigarettes regularly?** ___ ___ years

7. **How many cigarettes do you smoke per day, on the average? Or, if you have stopped smoking regularly, how many did you smoke, on the average, before you stopped?** (1 pack = 20 cigarettes) ___ ___ cigarettes per day

8. **What brand of cigarette do you usually smoke? Or, if you have stopped smoking, what brand did you smoke most recently?**_____

   Are (were) these:
   1 ☐ filtered
   2 ☐ unfiltered

   Are (were) these:
   1 ☐ regular length (85mm)
   2 ☐ king-size (100 mm)
   3 ☐ long

   Are (were) these:
   1 ☐ menthosated
   2 ☐ plain

   How many years did you smoke this particular brand, size and type of cigarette? (If less than 6 months, write in 00) ___ ___ years

9. **What brand of cigarette did you smoke for the longest time?** _____

   How many years did you smoke this brand? ___ ___ years

10. **Altogether, how many years have you smoked filter cigarettes?** (If never or less than 6 months, write in 00) ___ ___ years

11. **Altogether, how many years have you smoked unfiltered cigarettes?** (If never or less than 6 months, write in 00) ___ ___ years

12. **Altogether, how many years have you smoked mentholated cigarettes?** (If never or less than 6 months, write in 00) ___ ___ years

13. **Altogether, how many years have you smoked low tar cigarettes?** (If never or less than 6 months, write in 00) ___ ___ years

A-0038

29. How often do you inhale the cigar smoke? Or, if you have stopped, how often did you inhale it before you stopped?

Check only one
1 ☐ All of the time, each puff
2 ☐ Most of the time
3 ☐ Part of the time
4 ☐ Rarely, once in a while
5 ☐ Never inhale

30. Do (did) you inhale the smoke slightly, moderately or deeply?

Check only one
1 ☐ Do (did) not inhale
2 ☐ Slightly (back to throat)
3 ☐ Moderately (partly into chest)
4 ☐ Deeply (deeply into chest)

31. Have you ever smoked a tobacco pipe regularly for at least one year? (Here "regularly" means at least two pipefuls of tobacco a week, almost every week)

1 ☐ Yes — If Yes, answer questions 32-39 below.
2 ☐ No — If No, skip to question 40.

32. How old were you when you started smoking a pipe regularly? ___ ___ years old

33. Do you still smoke a pipe regularly?

1 ☐ Yes
2 ☐ No

34. If you have stopped smoking a pipe regularly, how many years ago did you stop? ___ ___ years ago

35. Altogether, how many years have you smoked a pipe regularly? ___ ___ years

36. How many pipefuls of tobacco do you regularly smoke per day, on the average? Or, if you have stopped smoking a pipe, how many did you usually smoke before you stopped? (If less than 1 per day, write in 00) ___ ___ pipes

37. What brand of pipe tobacco do you currently smoke? Or, if you have stopped smoking a pipe, what brand did you smoke most recently? _____

38. How often do you inhale the smoke? Or, if you have stopped, how often did you inhale it before you stopped?

Check only one
1 ☐ All of the time, each puff
2 ☐ Most of the time
3 ☐ Part of the time
4 ☐ Rarely, once in a while
5 ☐ Never inhale

39. Do (did) you inhale the smoke slightly, moderately or deeply?

Check only one
1 ☐ Do (did) not inhale
2 ☐ Slightly (back to throat)
3 ☐ Moderately (partly into chest)
4 ☐ Deeply (deeply into chest)

40. Have you ever regularly used either snuff or chewing tobacco for at least one year? (Here "regularly" means at least once a week, almost every week)

(You may check more than one)
00 ☐ No, never regularly used snuff or chewing tobacco
1X ☐ Yes, have used snuff and still use it
2X ☐ Yes, have used snuff, but I no longer use it
X1 ☐ Yes, have used chewing tobacco and I still use it
X2 ☐ Yes, have used chewing tobacco, but I no longer use it

41. On the average, how many hours per week are you exposed to cigarette, cigar or pipe smoke in your home because of smoking by others? (Write in 000 if less than 1 hour per week) ___ ___ ___ hours

42. On the average, how many hours per week are you exposed to cigarette, cigar or pipe smoke in a small space other than your home (such as airplane, office, car, etc.) because of smoking by others? (Write in 000 if less than 1 hour per week) ___ ___ ___ hours

43. On the average, how many hours per week are you exposed to cigarette, cigar or pipe smoke in a large indoor area (such as restaurant, hotel lobby, lecture hall, etc.) because of smoking by others? (Write in 000 if less than 1 hour per week) ___ ___ ___ hours

14. When you smoke, how often do you inhale the smoke? Or, if you have stopped smoking, how often did you inhale the smoke before you stopped?

Check only one
1 ☐ All the time, each puff
2 ☐ Most of the time
3 ☐ Part of the time
4 ☐ Rarely
5 ☐ Never inhale

15. Do (did) you inhale the smoke slightly, moderately or deeply?

Check only one
1 ☐ Do (did) not inhale
2 ☐ Slightly (back to throat)
3 ☐ Moderately (partly into chest)
4 ☐ Deeply (deeply into chest)

16. How much of the cigarette do you usually smoke? Or, if you have stopped smoking, how much did you usually smoke before you stopped?

Check only one
1 ☐ More than ¾
2 ☐ ¼ to ¾
3 ☐ Less than ¼

17. How long after awakening do you usually have your first cigarette? Or, if you have stopped smoking, how long after awakening did you usually have your first cigarette before you stopped?

Check only one
1 ☐ Immediately, within minutes
2 ☐ Not immediately, but within one hour
3 ☐ More than one hour, but before lunch
4 ☐ Lunch or later, but before dinner
5 ☐ Dinnertime or later

18. How many times have you made a serious attempt to stop smoking cigarettes? ___ ___ times

19. When you last made a serious attempt to stop, how would you describe your experience in the first two days after your last cigarette?

Check only one
1 ☐ Never tried seriously to quit
2 ☐ Great difficulty
3 ☐ Moderate difficulty
4 ☐ No real difficulty

20. Have you ever smoked cigars regularly for at least one year? (Here "regularly" means at least two cigars per week, almost every week)

1 ☐ Yes If Yes, answer questions 21-30 below.
2 ☐ No If No, skip to question 31.

21. How old were you when you started smoking cigars regularly? ___ ___ years old

22. Do you still smoke cigars regularly?

1 ☐ Yes
2 ☐ No, but I still smoke cigars occasionally
3 ☐ No, not at all

23. If you have stopped smoking cigars regularly, how many years ago did you stop? ___ ___ years ago

24. Altogether, how many years have you smoked cigars regularly? ___ ___ years

25. How many cigars do you smoke per day, on the average? Or, if you have stopped smoking cigars, how many did you usually smoke before you stopped? (If less than 1 per day, write in 00) ___ ___ cigars

26. What size cigar do you usually smoke? Or, if you have stopped, what size did you usually smoke before you stopped?

Check only one
1 ☐ Cigarillos (little cigars)
2 ☐ Medium
3 ☐ Large
4 ☐ More than one size

27. What brand of cigars do you currently smoke? Or, if you have stopped smoking cigars, what brand did you smoke most recently? _____

28. How much of the cigar do you usually smoke? Or, if you have stopped , how much did you usually smoke before you stopped?

Check only one
1 ☐ More than ¾
2 ☐ ¼ to ¾
3 ☐ Less than ¼

44. Have you ever smoked marijuana?

1 ☐ No
2 ☐ Yes, but only once or twice in my lifetime
3 ☐ Yes, 3-6 times in my lifetime
4 ☐ Yes, more than 6 times in my lifetime

If Yes, more than 6 times in lifetime, answer questions 45-47.
If No, or if marijuana smoked 6 times or less in lifetime, skip to question 48.

45. Do you currently smoke marijuana?

1 ☐ Yes
2 ☐ No

46. How often do you smoke it? Or, if you no longer smoke it, how often did you smoke it before you stopped?

Check only one

1 ☐ Almost every day, usually in large amounts
2 ☐ Almost every day, sometimes in large amounts
3 ☐ About once or twice a week, sometimes in large amounts
4 ☐ About once or twice a week, never in large amounts
5 ☐ About once or twice a month, sometimes in large amounts
6 ☐ About once or twice a month, never in large amounts
7 ☐ Less than once a month
8 ☐ Other, describe _____

47. Altogether, how many years have you smoked marijuana? (If less than 6 months, write in 00) __ __ years

48. In the past year, did you see a doctor outside Kaiser?

1 ☐ Yes
2 ☐ No

If Yes, how many times? __ __ times

For what condition(s)? _____

49. In the past year, have you been a patient overnight in a hospital outside Kaiser?

1 ☐ Yes
2 ☐ No

If Yes, how many times? __ __ times

For what condition(s)? _____

50. In the past year, how many days were you so ill with a minor illness, such as cold, flu, sore throat, etc., that you were unable to perform your usual work or activity? (If none, write in 000) __ __ __ days

51. In the past year, how many days were you so ill with a major illness, such as heart attack, cancer, pneumonia, major operation, etc., that you were unable to perform your usual work or activity? (If none, write in 000) __ __ __ days

52. What is your race?

1 ☐ Black
2 ☐ White
Oriental/Asian
3 ☐ Japanese 4 ☐ Chinese 5 ☐ Filipino 6 ☐ Other Oriental/Asian
7 ☐ Other, Specify _____

DO YOU WANT TO CHANGE YOUR SMOKING HABITS? (Test 1)

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Consequences of Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

This questionnaire assesses whether or not individuals perceive the consequences of smoking as important enough to alter smoking habits. Respondents are asked to circle the number from 1 (completely disagree) to 4 (completely agree) that most accurately indicates how they feel about each statement related to: concern over effects of smoking on health; desire to set an example for others; recognition of the unpleasant esthetic effects of smoking; and desire to exercise self-control. A total for each category is obtained by adding the scores. The totals are then used to indicate the important reasons to abstain from smoking or to stop smoking.

AUTHORS:

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Public Health Service, U.S. Department of Health, Education, and Welfare

ADDITIONAL INFORMATION:

This measure is Test 1 in a series of 4 tests published as the Smoker's Self-Testing Kit. The booklet is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Requests should include stock number 017-001-00180-5.

TEST 1

DO YOU WANT TO CHANGE YOUR SMOKING HABITS?

For each statement, circle the number that most accurately indicates how you feel. For example, if you completely agree with the statement, circle 4, if you agree somewhat, circle 3, etc.

Important: Answer every question.

	completely agree	somewhat agree	somewhat disagree	completely disagree
A. Cigarette smoking might give me a serious illness.	4	3	2	1
B. My cigarette smoking sets a bad example for others.	4	3	2	1
C. I find cigarette smoking to be a messy kind of habit.	4	3	2	1
D. Controlling my cigarette smoking is a challenge to me.	4	3	2	1
E. Smoking causes shortness of breath.	4	3	2	1
F. If I quit smoking cigarettes it might influence others to stop.	4	3	2	1
G. Cigarettes cause damage to clothing and other personal property.	4	3	2	1
H. Quitting smoking would show that I have willpower.	4	3	2	1
I. My cigarette smoking will have a harmful effect on my health.	4	3	2	1
J. My cigarette smoking influences others close to me to take up or continue smoking.	4	3	2	1
K. If I quit smoking, my sense of taste or smell would improve.	4	3	2	1
L. I do not like the idea of feeling dependent on smoking.	4	3	2	1

HOW TO SCORE:

1. Enter the numbers you have circled to the Test 1 questions in the spaces below, putting the number you have circled to Question A over line A, to Question B over line B, etc.
2. Total the 3 scores across on each line to get your totals. For example, the sum of your scores over lines A, E, and I gives you your score on *Health*—lines B, F, and J give the score on *Example*, etc.

Totals

____ A	+	____ E	+	____ I	=	____	Health
____ B	+	____ F	+	____ J	=	____	Example
____ C	+	____ G	+	____ K	=	____	Esthetics
____ D	+	____ H	+	____ L	=	____	Mastery

Scores can vary from 3 to 12. Any score 9 and above is *high*; any score 6 and below is *low*. Learn from Part 2 what your scores mean.

TEST 1. Do You Want to Change Your Smoking Habits?

Why do you want to quit smoking? Are your reasons strong enough for you to make the effort to quit? Do you have enough reasons? This is something only you can decide.

Four common reasons for wanting to quit smoking cigarettes are: Concern over the effects on *health;* desire to set an *example* for others; recognition of the unpleasant aspects (the *esthetics*) of smoking; and desire to exercise *self-control.*

Test 1 of the Smoker's Self-Testing Kit was designed to measure the importance of each of these reasons to you. The higher you score on any category, say *health*, the more important that reason is to you. A score of 9 or above in one of these categories indicates that this is one of the most important reasons why you may want to quit.

1. HEALTH

Research during the past 10 or 15 years has shown that cigarette smoking can be harmful to health. Knowing this, many people have recently stopped smoking and many others are considering it. If your score on the *health* factor is 9 or above, the health hazards of smoking may be enough to make you want to quit now.

If your score on this factor is low (6 or less), look at your scores on Test 2. They tell how much you know about the health hazard. You may be lacking important information or may even have incorrect information. If so, health considerations are not playing the important role they should in your decision to keep on smoking or to quit.

2. EXAMPLE

Some people stop smoking because they want to set a good example for others. Parents do it to make it easier for their children to resist starting to smoke; doctors do it to influence their patients; teachers want to help their students; sports stars want to set an example for their young fans; husbands want to influence their wives, and vice versa.

Such examples are an important influence on our behavior. Research shows that almost twice as many high school students smoke if both parents are smokers compared to those whose parents are nonsmokers or former smokers.

If your score is low (6 or less), it may mean that you are not interested in giving up smoking in order to set an example for others. Perhaps you do not appreciate how important your example could be.

3. ESTHETICS (the unpleasant aspects)

People who score high, that is, 9 or above, in this category, recognize and are disturbed by some of the unpleasant aspects of smoking. The smell of stale smoke on their clothing, bad breath, and stains on their fingers and teeth might be reason enough to consider breaking the habit.

4. MASTERY (self-control)

If you score 9 or above on this factor, you are bothered by the knowledge that you cannot control your desire to smoke. You are not your own master. Awareness of this challenge to your self-control may make you want to quit.

Summary of Test 1

Test 1 has measured your attitude toward four of the most common reasons why people want to quit smoking. Consider those that are important to you. Even if none are important, you still may have a highly personal reason for wanting to change your habit. All in all, you may now see that you have reasons enough to want to quit smoking.

If you are still not sure, study the interpretation of your scores on Test 2 (the next test) to determine what you know about the effects of smoking on your health and what part that knowledge may play in your decision.

SMOKING SITUATIONS

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Ability to Refrain from Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

The self-efficacy scale, Smoking Situations, measures an individual's perceived ability to refrain from smoking in various situations. The measure presents a series of situations that often lead people to smoke. Respondents are asked to use a scale from 1 (not at all) to 5 (extremely) to indicate for each situation (A) how tempted they would be to smoke, and (B) their confidence about refraining from smoking. Scores on individual items are added to obtain summary scores for temptation and confidence (self-efficacy). The measure has been used on a pretest and posttest basis to evaluate treatment and to predict relapse potential.

TECHNICAL INFORMATION:

The authors describe a study in which the measure was administered to 900 volunteer subjects classified into five categories according to their current smoking status, for example, long-term quitters and relapsors. Subjects were initially assessed with the measure, then re-assessed several months later. Subjects' scores on the initial administration of the measure were consistent with the five-part categorizations. Shifts in subjects' smoking status during the test-retest period were, in several instances, consonant with predictions based on their initial scores.

The current 31-item version of this scale was expanded from a 12-item scale previously demonstrated to predict maintenance of smoking cessation. The 31-item measure was subjected to a principal component factor analysis which yielded four major factors accounting for 82 percent of the variance.

AUTHORS: Carlo C. DiClemente
Texas Research Institute of Mental Sciences

James O. Prochaska
University of Rhode Island

ADDITIONAL INFORMATION:

DiClemente, C.C. & Prochaska, J.O. Self-efficacy and the stages of self-change of smoking. Los Angeles: a symposium presentation at the annual meeting of the American Psychological Association, August 1981.

SMOKING SITUATIONS

Listed below are situations that lead some people to smoke. We would like to know:

A) How tempted you may be to smoke in each situation, AND

B) How confident you would be that you would not smoke.

Please check the boxes that best describe your feelings in each situation.

A. How tempted would you be to smoke in this situation?					Situation	B. How confident are you that you would not smoke in this situation?				
1 Not at All	2 Not Very	3 Moderately	4 Very	5 Extremely		1 Not at All	2 Not Very	3 Moderately	4 Very	5 Extremely
					1. When alone and feeling depressed.					
					2. When I am nervous.					
					3. With friends at a party.					
					4. Over coffee while talking and relaxing.					
					5. With my spouse or a close friend who is smoking.					
					6. At work when I am experiencing some pressure in my job.					
					7. At a bar or cocktail lounge having a drink.					
					8. When I wake up in the morning and face a tough day.					
					9. When I am happy and celebrating.					

A. How tempted would you be to smoke in this situation? (1 Not at All, 2 Not Very, 3 Moderately, 4 Very, 5 Extremely)	Situation	B. How confident are you that you would not smoke in this situation? (1 Not at All, 2 Not Very, 3 Moderately, 4 Very, 5 Extremely)
	10. When I am bored and have nothing to do.	
	11. When I would experience an emotional crisis, such as an accident or death in the family.	
	12. When I see that I am gaining weight.	
	13. When I am angry at someone close to me.	
	14. When I am desiring a cigarette.	
	15. When I am craving a cigarette.	
	16. When I am extremely anxious and stressed.	
	17. When I am frustrated about events in my life.	
	18. When I am feeling warm and affectionate with my spouse/lover.	
	19. When I am feeling accepted and close to someone.	
	20. When I am very angry about something or someone.	
	21. When things are just not going the way I want and I am frustrated.	
	22. When there are arguments and conflicts with my family.	

A. How tempted would you be to smoke in this situation? (1 Not at All, 2 Not Very, 3 Moderately, 4 Very, 5 Extremely)	Situation	B. How confident are you that you would not smoke in this situation? (1 Not at All, 2 Not Very, 3 Moderately, 4 Very, 5 Extremely)
	23. When I see someone smoking and enjoying it.	
	24. When I am in a social situation with a group of people I do not know well.	
	25. When others around me are smoking at work.	
	26. When I begin to let down on my concern about my health and am less physically active.	
	27. When I am really missing the smoking habit and all that goes with it.	
	28. When I want to test my control over cigarettes and smoke just one cigarette.	
	29. When I realize that quitting smoking is an extremely difficult task for me.	
	30. When I am extremely depressed.	
	31. When I just don't give a darn about anything.	

SMOKING SELF-EFFICACY QUESTIONNAIRE

TYPE OF MEASURE: Affective

OUTCOME MEASURED: Perceived Ability to Refrain from Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

The Smoking Self-Efficacy Questionnaire is designed to assess individuals' perceived self-efficacy in being able to resist urges to smoke. Individuals are presented with a series of items describing situations in which people often experience an urge to smoke. Respondents are asked to indicate if they can refrain from smoking in each situation. If they indicate that they can refrain, they are then asked to estimate on a scale of 10 to 100, how confident they are of their ability to refrain from smoking in that situation.

TECHNICAL INFORMATION:

The authors describe a systematic attempt to isolate situations in which respondents would encounter substantial difficulty in resisting smoking. In an effort to support the content validity of the 23-item instrument, two separate surveys were made to identify high-temptation situations for smokers. In two separate investigations, each involving approximately 30 smokers, scores on the measure were shown to be highly predictive of future smoking behavior. In both studies, 82 percent of the subjects displayed future smoking behavior in accord with predictions derived from their scores on the measure.

AUTHORS:

Gep Colletti and Jay A. Supnick
Department of Psychology, State University of New York at Binghamton

ADDITIONAL INFORMATION:

Colletti, G., Supnick, J.A., & Rizzo, A.A. Part II: Measurement of self-efficacy in high-risk smoking situations. Los Angeles: a symposium presentation at the annual meeting of the American Psychological Association, August 1981.

SELF-EFFICACY QUESTIONNAIRE

NAME: _____ DATE: _____

Smoking Reduction Clinic
Department of Psychology
SUNY-BINGHAMTON

Collecti and Supnick

The following paragraphs are descriptions of situations in which people with smoking problems often find it very difficult not to smoke. If you are trying to stop, they may be the situations in which you are likely to give up. If you are in a smoking reduction program, they may be situations in which you are most likely to forget or ignore program instructions about how to reduce your smoking habit.

First, read each description and as vividly as possible try to imagine yourself in that situation. Then assess whether you expect that in this situation you could control your smoking behavior and remain on your reduction program. Write down "YES", meaning "I could control my smoking behavior" or "NO", meaning "I could not control my smoking behavior" in the blank marked "CAN DO".

If you answer "YES", then please assess how confident you are that you could control your smoking behavior. Using the numbers from the scale 10 to 100 printed at the top of each page, choose one which expresses your degree of confidence, and write that number down in the blank marked "CONFIDENCE".

Some of the exact details of a situation may not apply to you-such as smoking while drinking coffee, but the description may be similar to a situation you do experience, smoking while drinking alcohol. You can assess that instead. If the situation is not one you would ever experience, you can place an X in the "CAN DO" blank and go on to the next item.

Practice Rating - to familiarize you with this type of rating, please complete these practice itmes first.

Confidence Scale

10 20 30 40 50 60 70 80 90 100
Quite Uncertain — Moderately Certain — Certain

Physical strength	CAN DO	CONFIDENCE
EXAMPLE: Lift a 1 pound box	YES	100
Lift a 5 pound box	_____	_____
Lift a 10 pound box	_____	_____
Lift a 50 pound box	_____	_____
Lift a 100 pound box	_____	_____

Self-Efficacy Questionnaire
Page 2

CONFIDENCE

10	20	30	40	50	60	70	80	90	100
Quite Uncertain				Moderately Certain					Certain

	DOES NOT APPLY	CAN DO	CONFIDENCE
1. You just returned from an important exam and you "know" you have done poorly.	____	____	____
2. A planned date stands you up. You are disappointed and begin to blame yourself.	____	____	____
3. You have had a fight with your boyfriend, girlfriend, spouse, or any friend and you are angry and upset.	____	____	____
4. You have been out for an evening, you feel relaxed and want to end the evening with a smoke.	____	____	____
5. You have just finished dinner in a good restaurant on a special occasion. Everyone orders coffee and your friends all sit back to enjoy a cigarette.	____	____	____
6. You are out with friends who are smoking a lot. You don't want them to know that you are on a smoking reduction program.	____	____	____
7. You just came home from a really rough day at school or work. The whole day was filled with anxiety, frustration, and failures.	____	____	____
8. You are sitting at home alone, in a bad mood, thinking about the problems and failures in your life.	____	____	____

Below is a list of activities during which smokers often report they habitually smoke. As above, please inidicate whether you feel confident that you could participate in these activities and control or eliminate your smoking and thus remain on a smoking reduction program.

9. watching television (e.g. sport event) ____ ____ ____

10. studying ____ ____ ____

11. reading a novel or magazine ____ ____ ____

12. attending a sports or entertainment event. ____ ____ ____

13. talking on the phone ____ ____ ____

14. drinking coffee/other non-alcoholic beverages ____ ____ ____

15. after a meal ____ ____ ____

16. talking or socializing ____ ____ ____

17. playing cards ____ ____ ____

Please rate the degree to which you believe you could perform the behavior described in the following situations.

18. You have just finished your first cigarette after not smoking for almost 3 weeks. You are upset with yourself but you decide to record your next cigarette (if you take one) as you did during the course to help you go back to not smoke. ____ ____ ____

19. You are talking with a friend who takes out a cigarette. You have not had a cigarette for 3 days. Your friend's cigarette looks good, and you really want one, but you also want to stop smoking completely. So, you ask your friend to not smoke in front of you. ____ ____ ____

20. You have been off cigarettes for several weeks, but you are losing your motivation to continue resisting the urge to have a cigarette. You decide to call your group leader for some support and suggestions. ____ ____ ____

21. You have just found some cigarettes lying around the house and smoked one. It tasted good, but you know you shouldn't have another, so you throw away the remaining cigarettes and decide you need to try harder to resist the urge next time. ____ ____ ____

22. You have just finished dinner, feel a bit drowsy, and really want a cigarette, but you haven't had one in several weeks. Instead of a cigarette you decide to take a walk to wake yourself up. ____ ____ ____

23. You want a cigarette desperately but you haven't smoked in such a long time and you don't want to blow it. Instead of taking a cigarette you decide to treat yourself by buying something special with some of the money you have saved from not buying cigarettes. ____ ____ ____

POSTTREATMENT CONFIDENCE QUESTIONNAIRE

TYPE OF MEASURE: Affective

OUTCOME ASSESSED: Perceived Ability to Refrain from Smoking

TARGET POPULATION: Adults or adolescents

GENERAL DESCRIPTION:

The Posttreatment Confidence Questionnaire is designed to assess the magnitude, strength, and generality of individuals' expectations to resist the urge to smoke in various situations. Individuals are presented with a list of situations in which people frequently smoke. They are asked to circle the number (from 0% to 100%) that best describes their confidence in their own ability to resist the urges to smoke in each situation. The confidence percentages are then used as self-efficacy ratings. High or low self-efficacy ratings have been used to predict overall smoking cessation or potential relapse prior to and/or following treatment intervention.

TECHNICAL INFORMATION:

To secure reliable groupings of situations (items) from the measure, pre-treatment responses of 78 cigarette smokers were subjected to a cluster analytic procedure. Seven moderately intercorrelated clusters emerged ranging from two to twelve items. Alpha reliability coefficients for the seven clusters of items ranged from .69 to .94.

AUTHORS:

Mark M. Candiotte and Edward Lichtenstein
University of Oregon

ADDITIONAL INFORMATION:

Condiotte, M.M., & Lichtenstein, E. Self-Efficacy and relapse in smoking-cessation programs. Journal of Consulting and Clinical Psychology, 1981, 49(2), 648-658.

POSTTREATMENT CONFIDENCE QUESTIONNAIRE

Name _____ Date _____ Time _____

Below is a list of 46 situations in which people frequently smoke. Please read each one carefully. Then circle the number underneath which best describes THE PROBABILITY THAT YOU WILL BE ABLE TO RESIST THE URGE TO SMOKE IN THAT SITUATION IN THE FUTURE IF THE SITUATION ARISES. If you are absolutely certain that you will not smoke in that situation, if it should arise, circle 100%. If you have no confidence in your ability to resist a cigarette in the future, in a given situation, circle 0%. More likely your confidence will vary. For example, if you are pretty sure that you will be able to resist the urge to smoke if and when you are drinking coffee or tea in the future, but not absolutely certain, you might circle 80%. If, on the other hand, you are pretty sure you would not be able to resist a cigarette if that situation arises, but not absolutely sure you couldn't you might circle 20%.

1. When you feel really happy
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
2. When you feel anxious
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
3. When you want to sit back and enjoy a cigarette
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
4. When you have finished a meal or snack
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
5. When you want to keep yourself busy
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
6. When you are nervous
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
7. When you want to feel more attractive
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
8. When you feel annoyed
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
9. When you want to relax
   0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
10. When you simply become aware of the fact that you are not smoking
    0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%
11. When you are trying to pass time
    0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

12. When you are worried
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

13. When you are in a situation in which you feel smoking is a part of your self-image
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

14. When you feel angry
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

15. When you feel tired
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

16. When you feel embarrassed
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

17. When you feel bored
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

18. When you want to have time to think in a conversation
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

19. When you feel restless
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

20. When you want something to do with your hands
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

21. When you want to concentrate
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

22. When you want something in your mouth
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

23. When you want to keep yourself busy
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

24. When you feel tense
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

25. When you feel you need more energy
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

26. When you are resting
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

27. When you are drinking an alcoholic beverage
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

28. When you feel oversensitive
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

29. When you see others smoking
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

30. When you feel impatient
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

31. When you want to reward yourself for something you've done or tell yourself that you can have a cigarette if you complete some task
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

32. When someone offers you a cigarette
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

33. When you are waiting for someone or something
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

34. When you feel uncomfortable
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

35. When you want to cheer up
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

36. When you want to avoid eating sweets
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

37. When you feel depressed
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

38. When you want to feel more mature and sophisticated
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

39. When you want to take a break from work or some other activity
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

40. When you want to keep slim
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

41. When you are overly excited
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

42. When you feel upset
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

43. When you light up a cigarette to go along with some activity you are doing (for example; while fixing a bicycle, writing a letter, doing housework...)
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

44. When you are drinking coffee or tea
0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

45. When you feel frustrated

0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

46. When you are angry with yourself

0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

47. What is the probability that you will be able to resist the urge to smoke altogether in the future, regardless of the situation?

0% - 10% - 20% - 30% - 40% - 50% - 60% - 70% - 80% - 90% - 100%

48. If you should happen to smoke a cigarette in the future, to what extent would this upset you? Please circle the number underneath which best describes how upset you would be

NOT UPSET AT ALL	1	2	3	4	5	6	7	8	9	10	EXTREMELY UPSET WITH MYSELF
					MODERATELY UPSET						

49. If you should happen to smoke a cigarette in the future, to what extent would you consider this an unimportant slip as opposed to a <u>failure</u> to give up your smoking habit?

UNIMPORTANT SLIP "I STILL HAVE CONFIDENCE IN MY ABILITY TO REMAIN AN EXSMOKER"	1	2	3	4	5	6	7	8	9	10	FAILURE "I AM A CIGARETTE SMOKER AGAIN"

CHAPTER SEVEN

TEST SPECIFICATIONS

This chapter contains the test specifications for all the newly-developed measures presented in Chapter Five. The specifications are arranged in the same order as that chapter's measures, with behavioral measures first, followed by knowledge, skill, and affective instruments.

Test specifications describe in detail both what an instrument is to measure and the manner in which the assessment is to be accomplished. Each set of test specifications begins with a General Description, which presents a brief overview of the scope and nature of the measure to be specified. A Sample Item follows, showing a typical item contained in the measure and the directions to respondents that accompany the instrument. The Stimulus Attributes section lists the rules that explain how the items for the measure are to be constructed. The Response Attributes section lists the rules that explain how the response options for the measure are to be constructed.

Many of the sets of specifications have one or more additional sections. A Technical Terms Supplement lists content-specific words which exceed the normal readability restrictions of a measure but which are used because of their importance and relevance. A Specifications Supplement, contained in all knowledge test specifications, presents an exhaustive listing of the content eligible for testing. Knowledge test specifications also contain a Bibliography which cites the references consulted in developing the content listing. Behavioral and affective test specifications include a Scoring and Interpretation section which explains the rationale and procedures to be used in evaluating the measure's data. Some affective test specifications also include a section entitled Measure Format which presents an item-by-item overview of the measure itself, highlighting the different variables represented by each item.

TEST SPECIFICATIONS

SMOKING QUESTIONNAIRE

GENERAL DESCRIPTION

Individuals are asked about their smoking behavior to determine if they currently smoke. This information can be used as a measure of how effectively a program has aided participants in abstaining from smoking. For individuals who indicate that they do currently smoke, this measure elicits the specific characteristics of that smoking behavior, including substance, frequency, and topography, in order to measure progress towards the goal of complete abstention.

SAMPLE ITEM

> **Please answer the following questions as carefully as you can, thinking about your smoking behavior during the past week.**

1. Have you smoked any cigarettes during the past week?

   ____ a. Yes
   ____ b. No

STIMULUS ATTRIBUTES

1. An item will ask about a characteristic of an individual's smoking behavior. That behavior will be limited to the specified time period of one week and to the use of cigarettes, cigars, and pipes.

2. A branching format will be used so that individuals respond only to questions appropriate to their smoking behavior. For example, someone who has not smoked a cigarette would not be asked to respond to questions regarding the manner in which cigarettes are smoked.

3. The following information will be elicited from those individuals who report that they have smoked cigarettes:

   a. The average number of cigarettes smoked each day

   b. The brand of cigarette smoked most frequently

   c. The characteristics of the cigarettes smoked (i.e., filter or non-filter, length, tar and nicotine level, mentholated or plain)

d. The depth of inhalation

e. How far down a cigarette is allowed to burn

f. How much of a cigarette burns without being smoked

4. The following information will be elicited from those individuals who report that they have smoked cigars or pipes:

   a. The average number of cigars smoked each day

   b. The average number of pipefuls of tobacco smoked each day

   c. The depth of inhalation of cigars and/or pipes

5. Each question will be 25 words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List, except for the following technical terms: millimeter, nicotine, mentholated.

RESPONSE ATTRIBUTES

1. All items will be either forced-choice or open-ended.

2. Forced-choice items will require the individual to respond "Yes" or "No" or to select the response that best characterizes an aspect of that individual's smoking behavior.

3. Open-ended questions will be used to elicit information that is not readily categorized, such as the brand name of cigarette smoked or the quantity of a tobacco product that is consumed.

INTERPRETATION

1. The responses to the questionnaire should permit program personnel to assess the current smoking behavior of respondents in order to determine whether individuals are abstaining from or have stopped smoking.

2. In addition to information about abstention or cessation, program personnel will be able to obtain information about substance, frequency, and topography for those individuals who continue to smoke. Changes in these critical characteristics can also be monitored as evidence of progress towards the goal of complete abstention.

3. If desired, program personnel can change the survey's specified time period of a week in order to focus data collection efforts on a shorter period (e.g., one day) for more detailed monitoring, or on a longer period (e.g., one month) for monitoring more general trends in behavior. Such a change can be made without altering the basic content or format of the instrument.

TEST SPECIFICATIONS

QUESTIONS ABOUT YOU

GENERAL DESCRIPTION

Children will be asked about their smoking behavior to determine if they smoke, how many cigarettes they smoke, and whether or not they inhale when they smoke. Responses can be used as a measure of the extent of smoking behavior among elementary school-age children.

SAMPLE ITEM

> **There are two questions below. Please answer both of them. For each question, put a check next to your answer. Your answers will be kept secret, so please tell the truth.**

1. Last week, about how many cigarettes did you smoke each day?

   ____a. I didn't smoke

   ____b. 1-5

   ____c. 6-10

   ____d. 11-20

   ____e. More than 20

STIMULUS ATTRIBUTES

1. The following information will be elicited from all respondents:

   a. The approximate number of cigarettes smoked each day.

   b. The extent to which respondents inhale if they smoke.

2. Each question will be 12 words or less in length. The words used will not exceed the fourth grade level on the IOX Basic Skills Word List, except for the following technical terms: cigarettes, inhale.

RESPONSE ATTRIBUTES

1. All items will be forced-choice and require individuals to place a check next to the response that best characterizes their smoking behavior.

INTERPRETATION

1. The responses to the questionnaire should permit program personnel to determine if respondents are abstaining from smoking.

2. The responses to the questionnaire will also provide information about two critical characteristics of smoking behavior for those respondents who do smoke. These characteristics are the number of cigarettes smoked and the extent to which the smoker inhales.

TEST SPECIFICATIONS

SMOKING AND ITS EFFECTS

GENERAL DESCRIPTION

Individuals are presented with statements about biomedical, economic, and social consequences of smoking behavior. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

> **This test consists of 20 statements about smoking and its effects. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.**

TRUE	FALSE	
____	____	1. More people gain weight than lose weight after giving up smoking.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will contain information related to a potential biomedical, economic, or social consequence of smoking.

2. All test items will be derived from the specifications supplement Smoking and its Effects. This supplement presents statements about smoking which are based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of the consequences of smoking.

3. Each statement on the supplement consists of one main idea related to the effects of smoking. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

   Example of a supplement statement with multiple parallel elements

   Cigarette smoking increases the risk of developing cancer of the lung, larynx, pharynx, mouth, esophagus, kidney, pancreas, and bladder.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

      Example of a test item created by paraphrase

      Supplement statement: Millions of workdays are lost each year because of diseases related to cigarette smoking.

      Test Item: Every year, illnesses related to cigarette smoking cause the loss of millions of workdays.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

Example of a test item created by negation

Supplement statement: Nicotine causes the heart to beat faster.

Test item: Nicotine does not cause the heart to beat faster.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, (2) changing a comparative statement to either reverse the direction of the comparison made or make both terms being compared equal, or (3) changing a quantitative value to one that is different than the one given. A quantitative change must result in a new value that makes the original statement false, rather than a value that allows the statement to remain true because it represents a subset of the original statement. A quantitative change must be expressed in the same terms as the original value.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: Nicotine causes the heart to beat faster.

Test item: Nicotine causes the heart to beat slower.

Supplement statement: Smokers of filter cigarettes are at less risk of developing lung cancer than smokers of non-filter cigarettes.

Test item: Smokers of filter cigarettes are at the same risk of developing lung cancer as smokers of non-filter cigarettes.

Supplement statement: About 10% of all hospital and medical costs in the United States are related to tobacco.

Test item: About 25% of all hospital and medical costs in the United States are related to tobacco.

7. A test item will contain a maximum of 25 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

   a. One item will be randomly selected from each section of the supplement.

   b. The rest of the items will be randomly selected from the supplement as a whole.

   c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT

SMOKING AND ITS EFFECTS

General Biomedical Consequences of Smoking

1. Tobacco smoke consists of dangerous particles and gases.
2. Tar, nicotine, hydrogen cyanide, and carbon monoxide are inhaled when you smoke.
3. Tar consists of numerous chemicals, some of which are believed to cause cancer.
4. Some scientists believe that nicotine is addictive.
5. Nicotine causes blood vessels to decrease in size, which reduces the amount of blood that can be transported.
6. Nicotine causes the heart to beat more rapidly.
7. Hydrogen cyanide damages the respiratory system.
8. Carbon monoxide decreases the amount of oxygen in the blood.

Smoking and Disease

9. The risk of developing coronary heart disease is twice as great for cigarette smokers as for nonsmokers.
10. The risk of developing coronary heart disease increases with the number of cigarettes smoked.
11. Cigarette smoking is directly related to one in every three deaths from cancer.
12. Cigarette smoking increases the risk of developing cancer of the lung, larynx, pharynx, mouth, esophagus, kidney, pancreas, and bladder.
13. The risk of developing lung cancer is ten times greater for cigarette smokers than for nonsmokers.
14. The risk of developing lung cancer increases proportionately with the number of cigarettes smoked each day, the number of years of smoking, and the depth to which the cigarette smoke is inhaled.

15. Cigarette smoking increases the risk of developing lung cancer for both men and women.

16. Cigarette smoking increases the risk of developing chronic bronchitis and emphysema.

Interactive Effects of Smoking

17. Cigarette smoking increases the risk of being harmed by exposure to other dangerous materials such as asbestos or coal dust.

18. Cigarette smoking increases the dangers associated with taking birth control pills.

19. Smokers have an increased risk of developing a respiratory infection after an operation.

20. Cigarette smoking during the later months of pregnancy increases the risk of having a stillborn baby, a baby that dies shortly after birth, and a baby of lower than average birthweight.

21. If a woman smokes during pregnancy, the nicotine and carbon monoxide she inhales enter the blood of the fetus.

22. Cigarette smoking during pregnancy increases the risk of having a baby that will get "sudden infant death syndrome."

Effects of Smoking Filter Cigarettes

23. Smokers of filter cigarettes are four times more likely than nonsmokers to develop lung cancer.

24. Smokers of filter cigarettes are at less risk of developing lung cancer than smokers of non-filter cigarettes.

25. Smokers of filter cigarettes are at less risk of developing respiratory diseases than smokers of non-filter cigarettes.

26. Smokers of most filter cigarettes inhale more carbon monoxide than smokers of non-filter cigarettes.

27. Smokers of most filter cigarettes are probably at greater risk of developing coronary heart disease than smokers of non-filter cigarettes.

Effects of Smoking Low-Tar and Low-Nicotine Cigarettes

28. Death rates are lower for smokers of low-tar and low-nicotine cigarettes than for smokers of high-tar and high-nicotine cigarettes.

29. Death rates are higher for smokers of low-tar and low-nicotine cigarettes than for nonsmokers.

Effects of Smoking Pipes and Cigars

30. Pipe or cigar smokers are less likely than cigarette smokers to develop lung cancer.

31. Pipe or cigar smokers are more likely than nonsmokers to develop lung cancer.

32. Pipe or cigar smokers who inhale while they are smoking are at greater risk of developing lung cancer than pipe and cigar smokers who do not inhale.

33. Pipe or cigar smokers are at the same risk as cigarette smokers of developing cancer of the esophagus, pharynx, larynx, and mouth.

34. Pipe smoking increases the risk of developing lip cancer.

Effects of Quitting Smoking

35. The health risks associated with smoking decrease when a person stops smoking.

36. If a person does not smoke for 10-15 years, that person's chances of developing lung cancer are the same as a nonsmoker's chances.

37. The same number of people lose weight as gain weight after giving up smoking.

38. If a woman stops smoking by the fourth month of her pregnancy, the risks of health problems or death to her infant are probably reduced to the levels of those for nonsmoking women.

Effects of Involuntary Smoking

39. Smokers and nonsmokers can suffer eye irritation, headaches, and nose and throat discomfort from cigarette smoke.

40. Cigarette smoke may fill an enclosed area with higher levels of carbon monoxide and other pollutants than are usually present during an air pollution emergency.

41. Infants whose parents smoke have a greater chance of developing respiratory infections than infants whose parents do not smoke.

Economic and Social Consequences of Smoking

42. Cigarette smoking creates health problems which increase the costs of health insurance and tax-supported health programs.

43. About 10% of all hospital and medical costs in the United States have some relation to tobacco use.

44. Millions of workdays are lost each year because of diseases related to cigarette smoking.

45. If a person smokes more than two packs of cigarettes a day, that person probably spends over $600 each year on cigarettes.

46. Cigarette smoking can leave noticeable stains on a person's teeth.

47. Cigarette smoking can leave a noticeable odor on a person's breath and clothing.

48. Parents who smoke are more likely to have children who smoke than are parents who do not smoke.

49. Teenagers are more likely to smoke if they have lower educational goals and achievement, do not accept the health risks of smoking, and have more smokers than nonsmokers among their friends.

TECHNICAL TERMS SUPPLEMENT

SMOKING AND ITS EFFECTS

addictive
asbestos
bladder
bronchitis
cancer
carbon monoxide
chronic
coronary heart disease
emphysema
esophagus
fetus
hydrogen cyanide
involuntary
irritation
kidney
larynx
lung
newborn
nicotine
oral contraception
pancreas
pharynx
pregnant
respiratory system
stillborn
sudden infant death syndrome

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TEST SPECIFICATIONS

FACTS ABOUT SMOKING

GENERAL DESCRIPTION

Children are presented with statements about health, social, and economic consequences of smoking. Children indicate whether each statement is true or false.

SAMPLE ITEM

> **This test has 15 sentences. Read each one. If the sentence is correct, put a check under the word TRUE. If the sentence is incorrect, put a check under the word FALSE.**

TRUE	FALSE	
___	___	1. Some scientists believe that nicotine is addictive.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the child is to judge as true or false. This statement will contain information related to either the hazardous substances contained in tobacco or the physical or social consequences of smoking.

2. All test items will be derived from the specifications supplement Facts About Smoking. This supplement presents statements about smoking which are based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of the consequences of smoking.

3. Each statement on the supplement consists of one main idea related to smoking. A statement either (a) describes the nature or effects of a particular subject, (b) compares two subjects with respect to a particular attribute, or (c) presents a correlational or causal relationship between two subjects.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

Example of a supplement statement with multiple parallel elements

Smoking causes cancer of the lungs, mouth, throat, kidneys, stomach, and many other parts of the body.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement. The quantitative portion of a supplement statement may not be paraphrased.

      Example of a test item created by paraphrase

      Supplement statement: Millions of workdays are lost each year because of illnesses caused by smoking.

      Test Item: Every year, illnesses from cigarette smoking cause the loss of millions of workdays.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

   a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

      Example of a test item created by negation

      Supplement statement: Nicotine makes the heart beat faster.

Test item: Nicotine does not make the heart beat faster.

b. Mutual exclusivity: Transforming a supplement statement to communicate a message that is mutually exclusive with the original message. This transformation can be accomplished by either (1) changing a single verb, adjective, or adverb in the original statement to a word or phrase with a contradictory meaning, or (2) changing a comparative statement to either reverse the direction of the comparison made or make both terms being compared equal.

Examples of test items created by transformation to a mutually exclusive statement

Supplement statement: Nicotine makes the heart beat faster.

Test item: Nicotine makes the heart beat slower.

Supplement statement: People who smoke are much more likely to have a heart attack than people who don't smoke.

Test item: People who smoke are no more likely to have a heart attack than people who don't smoke.

7. A test item will contain a maximum of 20 words. These words will be no higher than a fourth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

a. One item will be randomly selected from each section of the supplement.

b. The rest of the items will be randomly selected from the supplement as a whole.

c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT
FACTS ABOUT SMOKING

Hazardous Substance

1. Tar and nicotine are poisonous materials breathed in when someone smokes.

2. Nicotine makes the blood vessels smaller.

3. Nicotine makes the heart beat faster.

4. Tar builds up in the lungs and causes changes that keep the lungs from working correctly.

5. Tar from cigarette smoke can cause cancer.

6. When tobacco is burned, it makes carbon monoxide, a poisonous gas.

7. Some scientists believe that nicotine is addictive.

Physical Effects of Smoking

8. Smoking causes cancer of the lungs, mouth, throat, kidneys, stomach, and many other parts of the body.

9. People who smoke are much more likely to have a heart attack than people who do not smoke.

10. People who smoke are likely to die at a younger age than people who do not smoke.

11. People who smoke usually have trouble breathing and usually cough a lot.

12. People who smoke have more gum and mouth problems than people who do not smoke.

13. People who smoke are more likely to develop other illnesses, such as pneumonia, after an operation than are people who do not smoke.

14. Besides having illnesses such as cancer and heart problems, people who smoke are usually sick more often than people who do not smoke.

15. Smoking increases the risk of developing lung cancer for both men and women.

16. If a woman smokes when she is pregnant, the nicotine and carbon monoxide in her blood is passed on to her unborn child, making normal growth difficult.

17. Babies of women who smoke usually weigh less when they are born than babies whose mothers did not smoke.

Effects of Different Types of Cigarettes

18. Although some cigarettes are lower in tar and nicotine than others, all cigarettes are harmful.

19. Although some cigarettes have filters, both filter and non-filter cigarettes are harmful.

Effects of Quitting Smoking

20. If a person who smokes stops smoking for 10 years or more, that person has the same chance for good health as a person who never smoked.

21. Regular smokers may feel nervous and shaky when they first stop smoking.

22. Many people who smoke would like to quit smoking, but they are unable to stop.

Effects of Involuntary Smoking

23. Anyone who is near people who are smoking can suffer headaches, nose and throat problems, and itching, watering eyes.

24. Cigarette smoke in the air contains many harmful chemicals that affect both smokers and the people around them.

25. Children whose parents smoke are likely to have more colds and coughs than other children.

Economic and Social Consequences

26. Millions of workdays are lost each year because of illnesses caused by smoking.

27. Smoking can stain a person's teeth.

28. Smoking can leave a bad smell on a person's breath and clothing.

29. Many children smoke because their friends or parents smoke.

30. People who smoke usually do not have more friends just because they smoke.

31. Teenagers are less likely to smoke if they are good students and want to continue their schooling, understand the health problems of smoking, and have more nonsmokers than smokers among their friends.

TECHNICAL TERMS SUPPLEMENT

FACTS ABOUT SMOKING

addictive
carbon monoxide
cigarette
disease
effects
filter
kidneys
lungs
material
nicotine
operation
pneumonia
poisonous
pregnant
scientists
tobacco
vessels

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TEST SPECIFICATIONS

SITUATIONAL CONTROL TECHNIQUES

GENERAL DESCRIPTION

Individuals are presented with statements describing either smoking cues or nonsmoking responses designed to control smoking behavior. Individuals indicate whether each statement is true or false.

SAMPLE ITEM

> **This test consists of 20 statements about controlling smoking habits. Some of the statements are true and some are false. If you think a statement is true, put a check in the column labeled TRUE. If you think a statement is false, put a check in the column labeled FALSE.**

TRUE	FALSE		
____	____	1.	Brisk walking is an effective nonsmoking behavior for smoking cues triggered by a desire for physical stimulation.

STIMULUS ATTRIBUTES

1. A test item will consist of a single-sentence statement that the individual is to judge as true or false. This statement will contain information related to either smoking cues or nonsmoking responses designed to control smoking behavior.

2. All test items will be derived from the specifications supplement Situational Control Techniques. This supplement presents statements about smoking which are based upon either empirical evidence or expert consensus. The statements are organized into sections, with each section containing information about one aspect of situational control techniques.

3. Each statement on the supplement consists of one main idea related to situational control techniques. A statement either (a) describes the general characteristics of smoking cues or nonsmoking responses or (b) presents a category of smoking cue and its associated effective nonsmoking substitute responses.

4. A test item will be based on a single statement selected from the supplement. If the supplement statement contains multiple parallel elements, only one of the elements will be used in the test item.

   Example of a supplement statement with multiple parallel elements

   Brisk walking, jogging, stretching, and taking a cool shower are effective nonsmoking behaviors for smoking cues triggered by a desire for physical stimulation.

5. A test item will present a supplement statement in either accurate or inaccurate form. An accurate test item can be created in one of the following two ways:

   a. Direct restatement: Reiterating a statement exactly as it appears on the supplement.

   b. Paraphrase: Rephrasing a supplement statement to communicate the same message in different words. This rephrasing may include substituting synonyms for words in the statement and/or reordering words within the statement.

      Example of a test item created by paraphrase

      Supplement statement: A person's smoking habit is determined by the frequency and strength of that person's smoking cues.

      Test Item: How often a person's smoking cues occur and how strong those cues are determine that individual's smoking habit.

6. An inaccurate test item will be based on a supplement statement or a paraphrase of that statement. An inaccurate item can be created in one of the following two ways:

a. Negation: Rewording a supplement statement to have the opposite meaning. If the statement is worded positively, negation is accomplished by adding a negative word or phrase to the statement. If the statement is worded negatively, negation is accomplished by taking out a negative word or phrase.

Example of a test item created by negation

Supplement statement: A person can use the same nonsmoking behaviors to manage urges set off by several different smoking cues.

Test Item: An individual cannot use the same nonsmoking behaviors to manage urges set off by several different smoking cues.

b. Substitution: Using a nonsmoking response appropriate to a cue category other than the one described, resulting in a statement presenting a nonsmoking response that does not match the smoking cue.

Example of a test item created by substitution

Supplement statement: Chewing sugarless gum is an effective nonsmoking behavior for smoking cues triggered by a desire for oral gratification.

Test item: Polishing one's glasses is an effective nonsmoking behavior for smoking cues triggered by a desire for oral gratification.

7. A test item will contain a maximum of 25 words. These words will be no higher than an eighth grade reading level on the IOX Basic Skills Word List. Technical terms not found on the word list may be used only if they are listed on the Technical Terms Supplement.

8. A test will contain an approximately equivalent number of accurate and inaccurate test items. These items will be selected according to the following procedures:

a. One item will be randomly selected from each section of the supplement.

b. The rest of the items will be randomly selected from the supplement as a whole.

c. All of the items will be reviewed by content experts and modified as needed based upon this review.

9. All of the procedures for creating accurate and inaccurate test items will be used as equally as possible, with the exception of negation of a positively-stated supplement statement. This type of change will be used only when no other transformation is possible, as it results in a test item which requires the respondent to recognize that a negatively-stated idea is not accurate, in effect creating a double negative.

RESPONSE ATTRIBUTES

1. Two response columns will be provided. One column will be labeled "TRUE" and the other will be labeled "FALSE."

2. The correct answer to a question will be "TRUE" if the statement is accurate, or "FALSE" if the statement is inaccurate.

SPECIFICATIONS SUPPLEMENT
SITUATIONAL CONTROL TECHNIQUES

Characteristics of Smoking Cues

1. Smoking cues are those factors which trigger a person's urge to smoke.

2. Smoking cues exist either within a person or as part of the environment.

3. Different people may have different smoking cues.

4. Common physical factors that act as smoking cues include physical stimulation, oral gratification, and handling objects.

5. Common emotional factors that act as smoking cues include pleasure and relaxation and a desire to reduce negative feelings.

6. Common environmental factors that act as smoking cues include specific times, places, and situations that are part of a person's daily routine.

7. A person's smoking habit consists of that person's response to various smoking cues.

8. A person's smoking habit is a behavior that is so well-established it occurs without a person's thinking about it.

9. A person's smoking habit is determined by the frequency and strength of that person's smoking cues.

10. Understanding your personal smoking pattern means being aware of those situations, times, places, and desires that trigger your urge to smoke.

11. The number of smoking cues that trigger a person's urge to smoke may often increase during an effort to stop smoking.

Characteristics of Effective Nonsmoking Behaviors

12. Nonsmoking behaviors are particular actions designed to change smoking cues.

13. Nonsmoking behaviors need to be practiced in order to be used effectively.

14. To be effective, a nonsmoking behavior used in response to a smoking cue should satisfy a person's urge to smoke.

15. Ideally, effective nonsmoking behaviors should have no negative health effects.

16. A nonsmoking behavior should be an action that is usually not associated with smoking (e.g., drinking milk, swimming).

17. A person can use the same nonsmoking behaviors to manage urges set off by several different smoking cues.

18. No one particular nonsmoking behavior will work effectively for all smokers.

19. Rewards are effective in reinforcing the use of nonsmoking behaviors.

Specific Nonsmoking Responses

20. Brisk walking, jogging, stretching, and taking a cool shower are effective nonsmoking behaviors for smoking cues triggered by a desire for physical stimulation.

21. Eating low calorie foods (e.g., vegetables, sugarless candy), chewing sugarless gum, and drinking beverages considered to be incompatible with smoking (e.g., milk, fruit juice, water) are effective nonsmoking behaviors for smoking cues triggered by a desire for oral gratification.

22. Drawing, working on crossword puzzles, polishing one's glasses, toying with a pencil, and working on hobbies that require the use of both hands and concentration (e.g., knitting, crocheting, model building) are effective nonsmoking behaviors for smoking cues triggered by a desire to handle objects.

23. Deep breathing exercises, meditation, taking a warm bath or shower, eating low calorie foods, drinking beverages not usually associated with smoking, physical exercise, and social activities are effective nonsmoking behaviors for smoking cues triggered by a desire for relaxation and pleasure.

24. Deep breathing exercises, meditation, physical activity, stretching, reading, playing cards, and doing crossword puzzles are effective nonsmoking behaviors for smoking cues triggered by a desire to reduce feelings such as tension, anger, and boredom.

25. Altering routine activities (e.g., avoiding smoking sections in restaurants, theaters and planes; staying away from bars, social situations, and leisure activities associated with smoking), keeping track of nonsmoking behaviors to earn a reward, reviewing your reasons for not smoking, thinking about smoking-related diseases, telling yourself not to smoke, asking friends, family and co-workers to reinforce nonsmoking behaviors, drinking non-alcoholic beverages, and thinking of yourself as a nonsmoker are effective nonsmoking behaviors for smoking cues triggered by the everyday environment.

TECHNICAL TERMS SUPPLEMENT

SITUATIONAL CONTROL TECHNIQUES

meditation
oral gratification
physical stimulation
technique

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TEST SPECIFICATIONS

BREAKING SMOKING HABITS

GENERAL DESCRIPTION

Individuals are presented with brief descriptions of fictitious persons experiencing commonly-occuring smoking cues, then asked to select from among possible courses of action the most healthy and effective way to handle each particular cue. The correct course of action will respond to the smoking cue in a situation with an appropriate nonsmoking response.

SAMPLE ITEM

> **This test presents descriptions of people who want to break their smoking habits. Each person is trying to use situational control techniques to deal with specific smoking cues. Read each description. Then circle the letter of the best action for the individual to take.**

1. Dwayne often smokes because of the pleasure that he gets from handling and holding a cigarette. The most healthy and effective way to handle this particular smoking cue would be to:

   (A) Plan each day's activities the evening before. (action that has no direct impact on the smoking cue)

   (B) Spend more time in the company of nonsmokers. (action that has no direct impact on the smoking cue)

   (C) Take up an activity such as drawing that keeps his hands busy. (correct action)

   (D) Switch to a different brand of cigarettes for a week or two. (action that is unhealthy)

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STIMULUS ATTRIBUTES

1. A test item will begin with a single-sentence description of a particular smoking habit that an individual has developed, followed by the directive, "The most healthy and effective way to handle this particular smoking cue would be to:"

2. The smoking habit described in a test item will be triggered by one of the types of smoking cues eligible for testing. Sufficient information will be provided to make clear the particular type of cue that is present.

3. The types of smoking cues eligible for testing are as follows:

   a. Stimulation--an individual smokes to wake up; to keep going; to maintain a high energy level.

   b. Pleasure and relaxation--an individual smokes to relax; to obtain general pleasure.

   c. Reduction of negative feelings--an individual smokes to reduce tension; to reduce feelings of anger, distress, pressure or boredom; to be able to cope with problems.

   d. Manipulation and handling--an individual smokes for the enjoyment of handling a cigarette and/or watching the smoke rise.

   e. Oral gratification--an individual smokes for the good taste that it yields.

   f. Habit--an individual smokes in response to a specific stimulus that has, as a result, become associated with smoking in an almost automatic manner. Typical stimuli which set the occasion for smoking include drinking coffee, tea, or alcoholic beverages; driving; reading; watching television; finishing a meal; taking a work break; studying; talking on the telephone; waking up; going to sleep; etc.

4. The stimulus portion of a test item will be no longer than 35 words in length and will contain no words above an eighth grade level on the IOX Basic Skills Word List.

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5. On a given form of the test, the various types of smoking cues will be represented approximately equally.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test item. Each choice will describe a plausible action that an individual might take in order to handle the smoking cue described.

2. The correct answer choice will describe an action selected from the appropriate nonsmoking responses listed for the type of smoking cue presented in the item. The appropriate responses for each type of smoking cue are as follows:

Smoking Cue	Appropriate Nonsmoking Responses
Stimulation	Undertaking some form of physical activity, for example, deep breathing, brisk walking, stretching, or jogging.
Pleasure and relaxation	Eating, drinking non-alcoholic or alcoholic beverages in moderation, participating in pleasurable individual or social activities, taking a bath or shower.
Reduction of negative feelings	Utilizing some form of systematic relaxation procedure, for example, deep breathing or meditation.
Manipulation and handling	Occupying the hands in some way, for example, toying with an object such as a pen or pencil, drawing, knitting, or crocheting, working on a craft project, taking eyeglasses on and off and polishing them.
Oral gratification	Chewing gum, eating sugarless candy, eating something low in calories such as celery or carrot sticks.

Habit	Replacing the specific stimulus that is cueing smoking with an alternative (for example, substituting tea for coffee), initiating an activity that is incompatible with smoking (for example, sewing while watching television), or reviewing diseases associated with smoking.

3. The incorrect answer choices for an item will each describe one of the following inappropriate responses to a smoking cue:

   a. A response that is unhealthy--acting in a way that either (1) violates basic principles of good health (for example, not eating three meals a day, not exercising, not maintaining regular sleeping patterns); (2) involves the consumption of foods that are high in sugar, salt, fat, and/or caloric content; (3) involves the consumption of large quantities of alcoholic beverages; (4) involves the use of medications or drugs; or (5) allows smoking to continue (for example, changing the type of cigarette smoked, making cigarettes less accessible by purchasing a pack instead of a carton, smoking with the other hand, putting cigarettes in a hard-to-open container or an inconvenient location.)

   b. A response that will most likely have no direct impact on the smoking cue--acting in a way that either (1) modifies the environment or one's behavior in a way unrelated to the smoking cue that is present, or (2) results in an action that is an appropriate nonsmoking response for a type of smoking cue other than the one present in the particular situation given.

4. Answer choices will be no longer than 18 words in length and will contain no words above an eighth grade level on the IOX Basic Skills Word List.

TEST SPECIFICATIONS

SMOKING AND ASSERTIVENESS

GENERAL DESCRIPTION

Individuals are presented with descriptions of fictitious persons experiencing discomfort due to the presence of others who are smoking or offering smoking materials. Individuals are asked to select from among possible options a course of action that incorporates assertiveness techniques or to indicate that none of the suggested options is appropriate.

SAMPLE ITEM

> **This test presents descriptions of people who feel uncomfortable because others are smoking or asking them to smoke. Each person wants to deal with the problem by using assertiveness techniques.**
>
> **Read each item. Then circle the letter of the action which describes an assertive response to the situation described. If there is no assertive response presented, circle choice D, "None of the above."**

1. Tom is in a movie theatre enjoying a film. The man sitting next to Tom is smoking, and the smoke keeps drifting into Tom's face. To act assertively, Tom should:

   (A) Ask the man if he would mind blowing his smoke in another direction. (non-confrontational)

   (B) Ask the man if he would put out his cigarette. (assertive)

   (C) Ignore the man and hope that he does not light up another cigarette. (passive)

   (D) None of the above.

STIMULUS ATTRIBUTES

1. A test item will begin with a description of a situation in which an individual who is not smoking experiences discomfort due to the presence of others who are either smoking or encouraging smoking behavior. The description will be followed by the directive: "To act assertively, (name of person) should:"

2. The types of situations eligible for testing are as follows:

   a. Exposure to smoking or smoking materials -- an individual is exposed to the smoking of others or to smoking materials. This individual may be a person who has never smoked or a person who is trying to quit smoking.

   b. Peer pressure to smoke -- an individual is encouraged to smoke by friends or colleagues.

3. The stimulus portion of a test item will be no longer than 60 words in length and will contain no words above an eighth grade on by the IOX Basic Skills Word List.

4. On a given form of the test, the two types of smoking situations will be represented approximately equally.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test item. The first three answer choices will describe plausible actions that an individual might take to deal with the situation described. The fourth answer choice will be "None of the above." This choice will be used to indicate that none of the first three answer choices incorporate an assertive response to the problem situation.

2. The correct answer choice will either exemplify an assertive response to the situation presented or, if all of the specific choices given describe non-assertive responses, state "None of the above."

3. An answer choice that exemplifies an assertive response will present an individual either politely asking a smoker to stop smoking, refusing an offer of smoking materials, or suggesting an alternative behavior for the smoker whereby the nonsmoker will not be exposed to smoke or smoking materials.

4. Incorrect answer choices will be plausible actions that are not assertive in the described situation. "None of the above" will also be an incorrect answer choice if an assertive response is provided as one of the other response options.

5. Incorrect answer choices will describe responses to the problem situation that do not incorporate assertiveness techniques. These responses include passive, aggressive, acquiescent, and non-confrontational responses. Each of these responses will differ from an assertive response in the following ways:

   a. A passive response will describe an individual who silently endures the discomfort of the smoking situation.

   b. An aggressive response will describe an individual who either makes a personal attack on the smoker (e.g., calls the smoker childish), bullies the smoker (e.g., threatens to hurt the smoker), takes an action that violates the smoker's right (e.g., takes cigarettes from the smoker), or suggests alternative behaviors that will violate the smoker's rights (e.g., asks a person not to smoke in the smoking section of a restaurant.)

   c. An acquiescent response will describe an individual who either accepts smoking materials in order to give the impression of smoking (e.g., lights a cigarette but leaves it in the ash tray), or actually engages in smoking behavior.

   d. A non-confrontational response will describe an individual who either only indirectly communicates personal discomfort with a smoking situation (e.g., makes a general announcement about how much smoke there is in the room), changes his or her own behavior in order to breathe air that is free from smoke, avoids responding to encouragement to smoke by changing the subject, or requests a change in someone else's smoking behavior that only partially alleviates the smoking situation (e.g., asks the smoker to smoke fewer cigarettes).

6. The response option, "None of the above," will be the correct response for approximately one-fourth of the test items.

7. Answer choices will be no longer than 20 words in length and will contain no words above an eighth grade level on the IOX Basic Skills Word List.

TEST SPECIFICATIONS

COMMUNICATING ABOUT SMOKING

GENERAL DESCRIPTION

Individual are presented with descriptions of fictitious persons who want either to express their feelings about their efforts to stop smoking or to request assistance with their stop smoking efforts. Individuals are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message, or to indicate that none of the suggested statements is appropriate.

SAMPLE ITEM

This test presents descriptions of people who are trying to stop smoking. They each have a message about smoking that they want to communicate to another individual.

Read each item. Then circle the letter of the choice that expresses the person's message clearly and directly. If there is no clear and direct response presented, circle choice D, "None of the above."

1. Jane wants to tell her husband how hard it is for her not to smoke when she is under pressure at work. The most clear and direct way for Jane to say this is:

   A. "You know what I mean about work pressure and smoking." (crystal ball message)

   B. "When I'm under so much pressure at work, I'm afraid I'll break down and have a cigarette." (correct)

   C. "People should try to stop smoking only when they aren't under pressure at work." (overgeneralized message)

   D. None of the above.

STIMULUS ATTRIBUTES

1. Test items will begin with brief descriptions of fictitious individuals who either wish to communicate their feelings about their efforts to stop smoking or wish to request assistance with their stop smoking efforts. Each description will be followed by the directive: "The most clear and direct way for (name of individual) to say this is:"

2. The situation described in a test item will include the following elements:

   a. a description of the problem or situational context

   b. a description of the contents of the intended message

   c. a phrase indicating to whom the message is being communicated (optional)

3. The types of messages eligible for testing are as follows:

   a. Feelings regarding efforts to stop smoking - individuals communicate their feelings regarding the success or failure of their efforts to stop smoking. These feelings may cover a range of emotions from despair to elation.

   b. Requests for assistance with stop smoking efforts - individuals who are trying to stop smoking ask others for help with their stop smoking efforts. Requests for assistance may include asking for help in keeping track of the number of cigarettes smoked, asking others not to "lend" cigarettes to the individual, or asking others not to smoke while in their presence.

4. The stimulus portion of a test item will be no longer than 50 words and will contain no words above an eighth grade level as listed on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test question. The first three answer choices will be quotations which are plausible statements of the message to be communicated. The fourth answer choice will be "None of the above." This choice will be used to indicate that none of these quotations clearly and directly communicates the individual's message.

2. The correct answer choice will either be a clear and direct statement of the individual's message or, if all of the specific choices given are examples of ineffective communication techniques, will be "None of the above."

3. An answer choice that is a clear and direct statement of the individual's message will exemplify the following techniques of effective communication:

   a. The message states the entire intended message, not just a portion of it.

   b. The individual is direct and specific in communicating the intended message.

   c. The individual uses words and phrases whose meanings are clear and easily understood.

   d. The individual uses the word "I" in the quotation.

4. The incorrect answer choice will be a quotation that is ineffective in communicating the individual's message. "None of the above" will be an incorrect answer if a correct answer is provided as one of the other answer choices.

5. An incorrect answer choice that is ineffective in communicating the individual's message will exemplify one of the following ineffective communication techniques:

   a. Overgeneralized Message - individuals assume either that a single experience is representative of all experiences (e.g., "People should try to stop smoking only when they aren't under pressure at work"), or that particular behaviors always occur in certain circumstances (e.g., "It will always be difficult for me not to smoke when I'm under pressure at work.")

b. Crystal Ball Message - individuals assume that others already know how they feel or what they want to communicate (e.g., "You know what I mean about work pressure and smoking.")

c. Judgment Message - individuals blame or criticize (e.g., "You are blind not to see how difficult it is for me to stop smoking when there's pressure at work.")

d. Incomplete Message - individuals provide only part of the information needed to send a complete message (e.g., "I'm under so much pressure at work.")

4. The response option "None of the above" will be the correct response for approximately one-fourth of the test items.

5. Answer choices will be no longer than 20 words and will contain no words above an eighth grade level as listed on the IOX Basic Skills Word List.

TEST SPECIFICATIONS

TALKING ABOUT SMOKING

GENERAL DESCRIPTION

Children are presented with descriptions of fictitious persons who want either to express their feelings about not smoking or to tell others that they don't wish to smoke. Children are asked to select from among three statements the one that most clearly and directly communicates the fictitious person's message.

SAMPLE ITEM

> **This test is about young people who want to tell how they feel about smoking cigarettes. Read about each person. Then choose the most clear and direct way of saying what the person wants to tell. Circle the letter of this choice.**

1. While on a camping trip, some boys told Roger that he was chicken because he wouldn't sneak off with them to smoke a cigarette. Roger wants to tell his father that he is upset about this. The most clear and direct way for Roger to say this is:

   A. "Several boys on the camping trip told me that I was chicken." (incomplete message)

   B. "You must know how bad I feel about being called chicken for not smoking." (crystal ball message)

   C. "I feel upset because some of the other boys called me chicken for not smoking." (correct)

STIMULUS ATTRIBUTES

1. Test items will begin with brief descriptions of fictitious young people who either want to express their feelings about not smoking or want to tell other people that they don't want to smoke cigarettes. Each description will be followed by the directive: "The most clear and direct way for (name of individual) to say this is:"

2. The situation described in a test item will include the following elements:

   a. a description of the problem or situational context

   b. a description of the contents of the intended message

   c. a phrase indicating to whom the message is being communicated (optional)

3. The types of messages eligible for testing are as follows:

   a. Feelings about not smoking - individuals communicate their feelings regarding their efforts not to smoke. These feelings may cover a range of emotions, from elation at not smoking to depression when encountering peer pressure to smoke.

   b. Communications about the desire not to smoke - individuals who do not want to smoke communicate this message to others who want them to smoke.

4. The stimulus portion of a test item will be no longer than 50 words and will contain no words above a fourth grade level as listed in the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. Three answer choices will follow each test question. Each choice will be a quotation which is a plausible statement of the message to be communicated.

2. The correct answer choice will be a clear and direct statement of the individual's message. It will exemplify the following techniques of effective communication:

   a. The message states the entire intended message, not just a portion of it.

   b. The individual is direct and specific in communicating the intended message.

   c. The individual uses words and phrases whose meanings are clear and easily understood.

   d. The individual uses the word "I" in the quotation.

3. An incorrect answer choice will be ineffective in communicating the individual's message. It will exemplify one of the following ineffective communication techniques:

   a. Overgeneralized Message - individuals assume either that a single experience is representative of all experiences (e.g., "Everyone gets upset when they're called names."), or that particular behaviors always occur in certain circumstances (e.g., "I'll always get upset when I'm called names for not smoking.")

   b. Crystal Ball Message - individuals assume that others already know how they feel or what they want to communicate (e.g., "You must know how bad I feel about being called chicken for not smoking.")

   c. Judgment Message - individuals blame or criticize (e.g., "You must be blind not to notice how upset I am about those boys calling me chicken.")

   d. Incomplete Message - individuals provide only part of the information needed to send a complete message (e.g., "Several boys on the camping trip told me that I was chicken.")

4. Answer choices will be no longer than 20 words and will contain no words above a fourth grade level as listed in the IOX Basic Skills Word List.

TEST SPECIFICATIONS

RESPONDING TO OTHERS ABOUT SMOKING

GENERAL DESCRIPTION

Individuals are presented with statements by fictitious persons. The statements either express a person's feelings about efforts to stop smoking or request assistance with stop smoking efforts. Individuals are to select from among four statements the response that best communicates acceptance and understanding of the fictitious person's situation.

SAMPLE ITEM

> **This test presents statements by individuals who want to communicate their feelings about smoking. Read each statement. Then circle the letter of the response that best communicates acceptance and understanding of the message.**

1. Jane: "I've been trying to stop smoking, but I'm under so much pressure at work that I'm afraid I might break down and have a cigarette."

   The response that best communicates acceptance and understanding of Jane's situation is:

   A. "You feel that way because you don't think your work is going very well." (diagnosing)

   B. "You don't have any will power if you break down at work and have a cigarette. (critizing/disagreeing)

   C. "You'll be sorry later if you break down and have a cigarette at work today." (warning)

   D. "You're fearful that when you're under pressure at work you won't have the will power to keep from smoking. (correct)

STIMULUS ATTRIBUTES

1. Test items will begin with statements by fictitious persons who want either to communicate their feelings about stopping smoking or to request assistance with their stop smoking efforts. Each statement will be followed by the directive, "The response that best communicates acceptance and understanding of (name of individual) is:

2. The statement presented in a test item will include the following elements:

   a. a description of the problem or situational context and

   b. a description of the message contents

3. The types of messages eligible for testing are as follows:

   a. Feelings regarding efforts to stop smoking - individuals communicate their feelings regarding the success or failure of their efforts to stop smoking. These feelings may cover a range of emotions from despair to elation.

   b. Requests for assistance with stop smoking efforts - individuals who are trying to stop smoking ask others for help with their stop smoking efforts. Requests for assistance may include asking for help in keeping track of the number of cigarettes smoked, asking others not to "lend" cigarettes to the individual, or asking others not to smoke while in their presence.

4. The stimulus portion of a test item will be no longer than 45 words and will contain no words above an eighth grade level as listed in the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. Four answer choices will follow each test question. Each choice will be a quotation which is a plausible response to the message being communicated.

2. The correct answer choice will exemplify the following techniques of effective responding:

   a. The respondent accurately paraphrases all of the sender's message.

   b. The respondent includes the word "you."

   c. By choice of words and by avoidance of any judgments, criticisms, or directives, the respondent implies respect, acceptance, and understanding for the sender.

3. An incorrect answer choice will exemplify one of the following ineffective communication techniques:

   a. Directing - the respondent tells the message sender how to solve the problem or suggests what to do (e.g., "Try to reduce some of the pressure at work so that you won't be tempted to smoke.")

   b. Warning - the respondent tells the message sender the consequences that will occur, with or without presenting facts or logic, or tells the message sender to consider the consequences (e.g., "You'll be sorry later if you break down and have a cigarette today.")

   c. Criticizing/Disagreeing - the respondent criticizes or disagrees with the message sender (e.g., "You don't have any will power if you break down and have a cigarette now.")

   d. Diagnosing - the respondent provides motives or explanations (e.g., "You feel that way because you don't think your work is going very well.")

4. Answer choices will be no longer than 20 words and will contain no words above an eighth grade level as listed in the IOX Basic Skills Word List.

TEST SPECIFICATIONS

PEOPLE PROFILES

GENERAL DESCRIPTION

This measure uses a semantic differential technique in which individuals are asked to describe smokers and nonsmokers, using a series of bipolar adjectives. These adjectives relate to the characteristics of health, aesthetic appeal, athletic ability, and social acceptability.

SAMPLE ITEM

What are your impressions of Smokers and Nonsmokers? Please respond to each of the two boxed questions below by placing a check in the appropriate place on each scale. The closer a check is to one end of the scale, the better the word or phrase at that end of the scale reflects your impressions.

For example, if you were asked to describe babies, you might respond as follows:

HOW WOULD YOU DESCRIBE BABIES?

Little	____:	✓ :	____:	____:	____	**Big**
Old	____:	____:	____:	____:	✓	**Young**
Fat	____:	____:	✓ :	____:	____	**Thin**

HOW WOULD YOU DESCRIBE SMOKERS?

Attractive	____:	____:	____:	____:	____	Unattractive

STIMULUS ATTRIBUTES

1. The inventory will consist of two sections. The first section will be preceded by the question:

HOW WOULD YOU DESCRIBE SMOKERS?

The second section will be preceded by the question:

HOW WOULD YOU DESCRIBE NONSMOKERS?

2. A set of bipolar adjective pairs will follow each boxed question. The set of adjectives will be the same for each section. Respondents will use these sets of adjectives to describe smokers and nonsmokers.

3. The sets of bipolar adjectives will equally reflect the four characteristics of health, aesthetic appeal, athletic performance, and social desirability.

4. The two bipolar adjective pairs for a particular characteristic will be presented such that the positive member of one pair and the negative member of the other pair appear on the left-hand side of the continuum.

5. Each member of an adjective pair will be three words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. Five response blanks, separated by colons, will be available for each adjective pair.

2. Respondents are to place a check in the blank that indicates the position on the continuum between the two members of an adjective pair that best characterizes their impression of the object of the question.

SCORING AND INTERPRETATION

1. The rational underlying this measure is that the more often respondents perceive (a) nonsmokers as healthy, aesthetically appealing, able to perform athletically, and socially acceptable and (b) smokers as unhealthy, aesthetically unappealing, unable to perform athletically, and socially unacceptable, the more negative the perceived consequences of smoking are for these respondents.

2. Point values are assigned to items according to the target concept being rated and the position of the positive and negative adjectives, as follows:

HOW WOULD YOU DESCRIBE SMOKERS?

positive adjective: 1 : 2 : 3 : 4 : 5 : negative adjective
negative adjective: 5 : 4 : 3 : 2 : 1 : positive adjective

HOW WOULD YOU DESCRIBE NONSMOKERS?

positive adjective: 5 : 4 : 3 : 2 : 1 : negative adjective
negative adjective: 1 : 2 : 3 : 4 : 5 : positive adjective

3. High scores reflect a strong belief that nonsmokers are healthier, more aesthetically appealing, better able to perform athletically, and more socially accepted than individuals who smoke.

MEASURE FORMAT

The following plan indicates the key characteristics of the "People Profiles" inventory developed from these test specifications.

Item	Object	Characteristic	Adjective at Left Pole
1	Smoker	Aesthetic appeal	Positive
2	Smoker	Athletic performance	Positive
3	Smoker	Aesthetic appeal	Negative
4	Smoker	Health	Positive
5	Smoker	Athletic performance	Negative
6	Smoker	Social acceptability	Negative
7	Smoker	Health	Negative
8	Smoker	Social acceptability	Positive
9	Nonsmoker	Aesthetic appeal	Positive
10	Nonsmoker	Athletic performance	Positive
11	Nonsmoker	Aesthetic appeal	Negative
12	Nonsmoker	Health	Positive
13	Nonsmoker	Athletic performance	Negative
14	Nonsmoker	Social acceptability	Negative
15	Nonsmoker	Health	Negative
16	Nonsmoker	Social acceptability	Positive

TEST SPECIFICATIONS

THINK ABOUT PEOPLE

GENERAL DESCRIPTION

This measure is designed to assess children's beliefs about the effects of smoking. Children are presented with one-sentence descriptions of individuals. Each individual is described according to his or her general state of health, aesthetic appeal, athletic performance, or social acceptability. Children are asked to indicate whether they think the person being described smokes or not.

SAMPLE ITEM

The questions below tell about different people you don't know. Circle the word that shows what you think about a person.

YES = The person probably smokes
MAYBE = Not sure if the person smokes
NO = The person probably does not smoke

YES MAYBE NO 1. Gregg has many friends. Do you think he smokes?

STIMULUS ATTRIBUTES

1. An item will consist of a single-sentence description of a hypothetical named boy or girl followed by the question, "Do you think he (she) smokes?"

2. Each individual will be described according to one of the following characteristics: general state of health, aesthetic appeal, athletic performance, and social acceptability. A characteristic will be presented in either positive or negative form.

3. The inventory will contain a proportionate number of items describing boys and girls. These items will equally represent the positive and negative aspects of the four characteristics listed in Stimulus Attribute No. 2.

4. Descriptions will be no longer than 10 words in length and will contain no words above a fourth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. The following three response options will be available for each item.

YES	=	The person probably smokes
MAYBE	=	Not sure if the person smokes
NO	=	The person probably does not smoke

2. Children are to use the response options to indicate whether they think the described person smokes. Children circle the letter of their response to the left of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that children who believe that nonsmokers are healthier, more aesthetically appealing, better able to perform athletically, and more socially accepted than individuals who smoke will more frequently (a) indicate that a person displaying a positive aspect of one of those characteristics does not smoke and (b) indicate that a person displaying a negative aspect of one of those characteristics does smoke.

2. Point values are assigned to items according to the characteristics displayed by the person described and the respondent's belief about this person's smoking behavior. If the person described displays a positive characteristic, then responses are assigned the following values: YES = 0, MAYBE = 1, NO = 2. If the person described displays a negative characteristic, the responses are assigned the following values: YES = 2, MAYBE = 1, NO = 0.

3. High scores indicate a strong belief that smokers are healthier, more aesthetically appealing, better able to perform athletically, and more socially accepted than individuals who smoke.

MEASURE FORMAT

The following plan indicates the key characteristics of the "Think About People" inventory developed from these test specifications.

Item	Type of Characteristic	Nature of Characteristic	Sex of Described Person
1	Social acceptability	Positive	Male
2	Aesthetic appeal	Positive	Female
3	Aesthetic appeal	Negative	Female
4	Health	Negative	Male
5	Athletic performance	Positive	Male
6	Social acceptability	Positive	Female
7	Health	Negative	Female
8	Social acceptability	Negative	Male
9	Health	Positive	Male
10	Athletic performance	Negative	Female
11	Athletic performance	Negative	Male
12	Health	Positive	Female
13	Social acceptability	Negative	Female
14	Athletic performance	Positive	Female
15	Aesthetic appeal	Positive	Male
16	Aesthetic appeal	Negative	Male

TEST SPECIFICATIONS

REFRAINING FROM SMOKING

GENERAL DESCRIPTION

This measure is designed to assess individuals' perceived self-efficacy in being able to resist urges to smoke. Individuals are presented with a series of items describing situations in which people often experience an urge to smoke and asked to indicate if they can refrain from smoking in each situation. If individuals indicate that they can refrain, then they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their ability to refrain from smoking in that situation.

SAMPLE ITEM

This survey describes various times when people often feel an urge to smoke. Read each statement. Circle YES or NO to show if you could refrain or keep from smoking at that time. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	CAN YOU DO THIS?	IF YES, HOW CERTAIN ARE YOU?
You can lift a 50 pound weight.	(YES) / NO	70
You can lift a 200 pound weight.	YES / (NO)	____

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

	CAN YOU REFRAIN FROM SMOKING?	IF YES, HOW CERTAIN ARE YOU?
1. You have just finished an enjoyable meal.	YES/NO	____

STIMULUS ATTRIBUTES

1. An item will describe a situation which, for many people, triggers an urge to smoke. The item will be written in second person and will refer to someone's participation or feelings in a situation, for example, "You have been watching television for quite a while."

2. The situations presented in test items will be drawn from those in which urges to smoke are triggered by habit, pleasure, tension-reduction, social pressure, or addiction (that is, a strong craving to smoke).

3. Situations will be selected to be applicable to most individuals. For example, a situation describing an individual's drinking cocktails at a party would not be used since a substantial number of individuals do not consume alcoholic beverages. Situations describing the consumption of non-alcoholic beverages, however, would be appropriate.

4. All situations will be described in terms that are as general as possible so that most respondents will be likely to identify personally with those situations.

5. Each item will be 20 words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List.

RESPONSE ATTRIBUTES

1. Two response opportunities are available for each item, a YES/NO answer and a confidence rating.

2. Respondents are to use the YES/NO option to indicate whether they can refrain from smoking in the situation given.

3. If respondents answer YES to an item, they are then to indicate how confident they are that they can refrain from smoking in the situation described by selecting a number from the following confidence scale:

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the more often respondents indicate that they can, with a high degree of confidence, refrain from smoking, the stronger the perceived self-efficacy of those respondents in being able to refrain from smoking.

2. This inventory can be scored in several ways, two of which are described here. In the first procedure, the number of YES responses is used as a gross index of an individual's perceived ability to refrain from smoking. The more YES responses, the more situations in which an individual believes that he or she can refrain from smoking.

   A combined analysis of YES/NO responses and confidence ratings allows for a more complete assessment of program effectiveness, as it incorporates both sources of information in a single index. This analysis is accomplished by computing the mean strength of the rated ability across all items; that is, by dividing the sum of the confidence ratings made in conjunction with "YES" responses by the number of items in the questionnaire. High scores reflect a strong perceived ability to refrain from smoking across a variety of settings, along with a high level of confidence in that ability.

TEST SPECIFICATIONS

SMOKING SURVEY

GENERAL DESCRIPTION

This measure is designed to assess the extent to which individuals intend to refrain from smoking tobacco products. Individuals are asked whether they intend to refrain from smoking during specified future time periods. If individuals indicate that they intend to refrain from smoking for a particular time period, then they are asked to estimate, on a 10 to 100 numerical scale, how confident they are of their intention.

SAMPLE ITEM

This survey asks about your intention to refrain or keep from smoking. Read each question, then circle YES or NO. If you circle YES, then use the Confidence Scale to show how certain you are of your answer.

The following examples show how the Confidence Scale is used.

Physical Strength Examples	**CIRCLE YES OR NO**	**IF YES, HOW CERTAIN ARE YOU?**
Can you lift a 50 pound weight?	**(YES) NO**	70
Can you lift a 200 pound weight?	**YES (NO)**	

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				**Somewhat Certain**					**Very Certain**

	CIRCLE YES OR NO	IF YES, HOW CERTAIN ARE YOU?
1. Do you intend to refrain from smoking for the next 24 hours?	YES/NO	

STIMULUS ATTRIBUTES

1. An item will take the form specified below, varying only in the temporal span cited, e.g., 24 hours, one month, etc.:

   "Do you intend to refrain from smoking for the next (specific time period)?"

2. The temporal spans specified will be time periods which are apt to be meaningful to respondents, for example, "one week" as opposed to "168 hours" (a week's worth of hours).

3. The temporal spans cited will be presented from shortest to longest, requiring respondents to consider their intentions to refrain from smoking for increasingly longer time periods.

4. Each item will be 15 words or less in length. The words used will not exceed the eighth grade level on the IOX Basic Skills Word List, except for the following word: refrain.

RESPONSE ATTRIBUTES

1. For each item, two response opportunities are available, a YES/NO answer and a confidence rating.

2. Respondents are to use the YES/NO option to indicate whether they intend to refrain from smoking for the temporal span given.

3. If respondents answer YES to an item, they are then to indicate the strength of their intention to refrain from smoking for the temporal span given, using the following Confidence Scale:

Confidence Scale

10	20	30	40	50	60	70	80	90	100
Very Uncertain				Somewhat Certain					Very Certain

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the longer the temporal span during which respondents indicate that they intend, with a high degree of confidence, to refrain from smoking, the stronger the overall intention of those respondents to refrain from smoking.

2. This measure can be scored in several ways, two of which are described here. In the first procedure, the number of YES responses is used as a gross index of an individual's intention to refrain from smoking. The more YES responses, the longer the temporal span during which an individual intends to refrain from smoking.

   A combined analysis of YES/NO responses and confidence ratings allows for a more complete assessment of program effectiveness, as it incorporates both sources of information in a single index. This analysis is accomplished by computing the mean strength of the confidence ratings across all items; that is, by dividing the sum of the confidence ratings made in conjunction with "YES" responses by the number of items in the measure. High scores reflect a strong intention to refrain from smoking for an extended period of time.

TEST SPECIFICATIONS

SMOKING QUESTIONS

GENERAL DESCRIPTION

This measure is designed to assess the extent to which children intend to refrain from smoking cigarettes. Children are asked whether they intend to smoke during specified future time periods. They are to select the response that best describes their future behavior.

SAMPLE ITEM

> **Here are some questions about smoking. Read each one. Then put a check (√) under the answer that best tells what you will do.**

	CERTAINLY NOT	PROBABLY NOT	MAYBE	PROBABLY YES	CERTAINLY YES
1. Will you smoke any cigarettes today?	___	___	___	___	___

STIMULUS ATTRIBUTES

1. All of the items except the last one will take the form specified below, varying only in the time period cited, e.g., today or tomorrow, this week, etc.:

   Will you smoke any cigarettes (specific time period)?

2. The time periods specified will be ones which are apt to be most meaningful to children, for example, "this week" as opposed to "the next seven days."

3. The time periods cited will be presented from shortest to longest, requiring children to consider their decisions about smoking for increasingly longer time periods.

4. The last item will ask, "Will you ever become a smoker?"

5. Each item will be 15 words or less in length. The words used will not exceed the fourth grade level on the IOX Basic Skills Word List, except for the following content-relevant words: cigarette, smoker.

RESPONSE ATTRIBUTES

1. The following five response options will be available for each item: CERTAINLY NOT, PROBABLY NOT, MAYBE, PROBABLY YES, and CERTAINLY YES.

2. Children are to use the response options to indicate whether they think they will smoke a cigarette during the specified time period. Respondents place a check in the appropriate space to the right of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the longer the time period during which children indicate that they intend, with a high degree of certainty, not to smoke, the stronger the overall intention of those children to refrain from smoking.

2. Point values are assigned to items according to the certainty with which children indicate that they will smoke during the specified period, as follows: CERTAINLY NOT = 5, PROBABLY NOT = 4, MAYBE = 3, PROBABLY YES = 2, CERTAINLY YES = 1.

3. High scores indicate a strong intention to refrain from smoking.

TEST SPECIFICATIONS

MY BODY

GENERAL DESCRIPTION

This measure is designed to assess children's respect for their bodies. Children are asked to indicate whether they would engage in activities which are healthful and avoid activities which are harmful to the body.

SAMPLE ITEM

> **Read each question. Then put a check (✓) under the answer that best tells what you are willing to do to take care of your body.**

In order to take care of your body, are you willing to ...	CERTAINLY YES	PROBABLY YES	MAYBE	PROBABLY NOT	CERTAINLY NOT
1. ... exercise several times each week?	___	___	___	___	___

STIMULUS ATTRIBUTES

1. An item will specify a healthful activity or the avoidance of a harmful activity. Individuals are to indicate if they would be willing to take care of their bodies even if it means engaging in the healthful activity or avoiding the harmful activity.

2. The activities presented in the test items will be important to maintaining healthy bodies. These activities will include exercising; getting adequate rest; avoiding cigarettes, alcohol, and unnecessary drugs; following doctor's orders; seeing a doctor regularly; obtaining immunizations; eating properly; and avoiding unnecessary stress.

3. Each item will be 10 words or less in length. The words used will not exceed the fourth grade level on the IOX Basic Skills Word List, except for the following words: alcohol, cigarettes, diseases, immunizations.

RESPONSE ATTRIBUTES

1. The following five response options will be available for each item: CERTAINLY YES, PROBABLY YES, MAYBE, PROBABLY NOT, and CERTAINLY NOT.

2. Children are to use the response options to indicate their willingness to take care of their bodies in the specified manner. Respondents are to place a check in the appropriate space to the right of each item.

SCORING AND INTERPRETATION

1. The rationale underlying this measure is that the more often children indicate that they are willing, with certainty, to take care of their bodies even if it means engaging in healthful activities or avoiding harmful ones, the stronger their respect for their bodies.

2. Point values are assigned to items according to the certainty of the children in being willing to take care of their bodies, as follows: CERTAINLY YES = 5 points, PROBABLY YES = 4 points, MAYBE = 3 points, PROBABLY NOT = 2 points, CERTAINLY NOT = 1 point.

3. High scores indicate a strong respect for one's body, as evidenced by a willingness to engage in activities which are healthful and to avoid those which are not.

ANNOTATED EVALUATION BIBLIOGRAPHY

(1) American Psychological Association. Ethical principles in the conduct of research with human participants. Washington, D.C.: Author, 1973.

This treatise focuses on the appropriateness of carrying out various types of research investigations with human subjects. Because the American Psychological Association has had a long-standing concern about ethical issues in the conduct of research investigations, this publication will be of interest to numerous evaluators of health education programs.

(2) American Psychological Association, American Educational Research Association, National Council on Measurement in Education. Standards for educational and psychological tests. Washington, D.C.: Author, 1974.

This soon-to-be-revised volume presents the most widely used set of standards for psychological and educational tests. Frequently cited by users of educational tests, the standards have recently been employed in numerous judicial deliberations. Relatively brief, the standards should be consulted by health educators who employ assessment devices regularly.

(3) Anderson, L.W. Assessing affective characteristics in the schools. Boston: Allyn and Bacon, 1981.

Anderson provides an excellent set of practical suggestions for the creation of affective assessment instruments. He includes one of the most easily understood expositions of various scaling procedures including Likert, Thurstone, and Guttman scales.

(4) Berk, R.A. (Ed.). Criterion-referenced measurement: the state of the art. Baltimore: The Johns Hopkins University Press, 1980.

This collection of essays consists of papers presented at the first John Hopkins University National Symposium on Educational Research. The authors treat many of the important problems, both conceptual and technical, facing developers and users of criterion-referenced measures.

(5) Berk, R.A. (Ed.). Handbook of methods for detecting test bias. Baltimore: The Johns Hopkins University Press, 1982.

This collection of individual essays offers the reader an up-to-date depiction of methods currently available to detect the presence of bias in tests.

(6) Campbell, D.T., & Stanley, J.C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1966.

This volume, originally a chapter in a larger volume, has had substantial impact on the fields of research and evaluation. Evaluators of health education will wish to consider this truly classic treatment of data-gathering designs suitable for experimental and quasi-experimental settings.

(7) Churchill, G.A., Jr. Marketing research: methodological foundations (2nd ed.). Hinsdale, Ill: The Dryden Press, 1979.

Although written in the context of marketing research, this textbook covers several topics of vital importance in evaluation. Topics such as research design, data collection, sampling, and data analysis are covered in a readily understandable, yet accurate way. An excellent resource.

(8) Cohen, J. Statistical power analysis for the behavioral sciences (Rev. ed.). New York: Academic Press, 1977.

Cohen offers a useful treatment of factors which should be considered when one draws samples for use in research or evaluation activities. Of special interest is the set of easy-to-use guidelines he offers for determining the estimated sample size necessary to detect differences between groups.

(9) Cook, T.D., & Campbell, D.T. Quasi-experimentation: design & analysis issues for field settings. Chicago: Rand McNally, 1979.

This widely cited volume provides a comprehensive treatment of quasi-experimental investigations in settings of substantial relevance to the concerns of health educators. There are excellent discussions included of internal and external validity, including the various threats to both types of validity. A systematic consideration of the commonly used data-gathering designs is offered, including an extended appraisal of interrupted time series designs.

(10) Cook, T.D., & Campbell, D.T. The design and conduct of quasi-experiments and true experiments in field settings. In M.D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally, 1976.

This is an up-dated version of the famous exposition of quasi-experimental and experimental data-gathering designs by Donald T. Campbell and Julian C. Stanley (see reference No. 6). An excellent discussion of four types of validity is featured in this essay.

(11) Cronbach, L.J. Course improvement through evaluation. Teachers College Record, May 1963, 64, 672-683.

An early piece, presenting the virtues of what would later be termed, "formative" evaluation. This article rings as true today as it did nearly two decades ago, and applies as much to evaluation in health education as it does to more traditional evaluation. Emphasizing the role of evaluation in gathering information which can improve programs, this article is well-worth reading.

(12) Cronbach, L.J., and associates. Toward reform of program evaluation. San Francisco: Jossey-Bass, 1981.

A recent publication, this book considers the function of evaluation in a pluralistic society, and presents 95 theses on the role of evaluators and evaluations. In addition to providing a contemporary conception of evaluation, it provides a historical and multi-diciplinary perspective on the field. This volume will be of considerable interest to those evaluating health education programs.

(13) Cronbach, L.J., et al. Analysis of covariance in nonrandomized experiments: parameters affecting bias. Unpublished occasional paper, Stanford Evaluation Consortium, Stanford University, 1977.

A highly technical piece on the complications associated with using analysis of covariance, this article is recommended only for those prepared to handle a critical problem in a sophisticated way.

(14) Cronbach, L.J., & Furby, L. How should we measure 'change' - or should we? Psychological Bulletin, 1970, 74, 68-80.

A technical treatise of the dangers associated with using gain scores. A very significant piece, but recommended only for those with some psychometric training.

(15) Ebel, R.L. How to estimate, interpret, and improve test reliability. Essentials of educational measurement (3rd ed.). Englewood Cliffs, N.J.: Prentice-Hall, 1979.

This is a standard, easily read introductory text, covering important topics in the field of educational testing. Ebel, a prominent leader of traditional educational testing practices, provides a lucid treatment of techniques for constructing test items.

(16) Green, L.W. Research methods translatable to the practice setting: from rigor to reality and back. In S. Cohen (Ed.) New directions in patient compliance. Lexington, Mass.: Lexington Books, 1979.

Green deals with a practical dilemma facing those who evaluate health education programs, namely, the necessity to make trade-offs between validity and feasibility in field settings. Six strategies for coping with evaluation under adverse circumstances are described.

(17) Green, L.W., & Figá-Talamanca, I. Suggested designs for evaluation of patient education programs. Health Education Monographs, September 1974, 2 (1).

In this essay Green and Figá-Talamanca suggest data-gathering designs for conducting evaluations of patient education programs. The authors also explore several issues related to evaluations of this variety.

(18) Hambleton, R.K., et al. Criterion-referenced testing and measurement: a review of technical issues and development. Review of Educational Research, Winter 1978, 48 (1), 1-48.

This is a comprehensive review of the field of criterion-referenced testing. Hambleton and his colleagues do a masterful job of isolating the key issues in criterion-referenced testing, then describing results of research investigations bearing on those issues. Somewhat technical at times, this review is one of the more widely cited essays dealing with criterion-referenced testing.

(19) Hays, W.L. Statistics for the social sciences (2nd ed.). New York: Holt, Rinehart, and Winston, 1973.

A comprehensive test dealing with basic and advanced statistical considerations. Somewhat technical at points, Hays nonetheless provides an excellent set of step-by-step guidelines to statistical practice.

(20) Hull, C., & Nie, N.H. Statistical packages for the social sciences (SPSS). New York: McGraw-Hill, 1978.

This is a widely used, well organized set of "canned" computer analysis programs for use in the social sciences. Health educators who have occasion to use computer analyses will find the SPSS manual most helpful.

(21) Joint Committee on Standards for Educational Evaluation. Standards for evaluations of educational programs, projects, and materials. New York: McGraw-Hill, 1981.

The development of these evaluation standards was spearheaded by a joint committee of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education. Thirty standards are presented, addressing issues related to deciding whether to evaluate defining the evaluation problem, designing evaluation, budgeting evaluation, collecting and analyzing data, and reporting evaluation. Intended for both consumers of evaluation and individuals conducting evaluation, this reference may be of most use to evaluators who are relatively new to the field.

(22) Levin, H.M. Cost-effectiveness analysis in evaluation research. In M. Guttentag & E.L. Struening (Eds.), Handbook of evaluation research (Vol. 2). Beverly Hills, CA.: Sage, 1975.

This essay probes the important considerations involved in determining cost-effectiveness of programs in the context of educational evaluations. Theoretical as well as practical guidelines are provided.

(23) Linn, R.L., & Slinde, J.A. The determination of the significance of change between pre- and post-testing periods. Review of Educational Research, 1977, 47, 121-150.

This article reviews many of the major issues in the measurement of change from pretesting to posttesting periods and suggests possible alternatives. These authors share the general sentiment of many others in the field that, "more is expected from gain scores than they can reasonably be expected to provide."

(24) Lord, F.H. Elementary models for measuring change. In C.W. Harris (Ed.), Problems in measuring change. Madison: Wisconsin Press, 1963.

An early treatise on the problems associated with measuring change. Although this chapter rapidly becomes very technical, the early sections provide an intuitive explanation of the difficulties with using gain scores.

(25) Oakland, T. (Ed.). Psychological and educational assessment of minority children. New York: Brunner/Mazel, 1977.

This collection of essays provides a series of useful suggestions for those who would become more sensitive to the possible bias present in educational tests.

(26) Popham, W.J. Educational evaluation. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

This is an introductory text, written in fairly non-technical language, about the field of educational evaluation. Evaluators of health education programs will find it simple to translate the book's contents to their own specialties.

(27) Popham, W.J. Modern educational measurement. Englewood Cliffs, N.J.: Prentice-Hall, 1981.

This is an up-to-date treatment of varied topics in the field of educational measurement. Norm-referenced measurement and criterion-referenced measurement are both considered, with the special applications of criterion-referenced assessment emphasized. Chapters on the relationship of testing to teaching and the measurement of affect will be of special interest to health educators.

(28) Popham, W.J., & Sirotnik, K.A. Educational statistics: use and interpretation (2nd ed.). New York: Harper and Row, 1973.

This is an easily read introductory text dealing with the fundamental types of statistical considerations needed by program evaluators. It is intended for those who are not particularly comfortable with mathematical approaches to statistics.

(29) Riecken, H.W., & Boruch, R.F. Social experimentation: a method for planning and evaluating social intervention. New York: Academic Press, 1971.

This significant contribution to our thinking about large scale social interventions, their design and appraisal, provides a useful analysis of the ways that the experimental method can be employed defensibly in connection with major social programs.

(30) Rivlin, A.M., & Timpane, P.M. (Eds.). Ethical and legal issues in social experimentation. Washington, D.C.: Brookings Institution, 1975a.

Rivlin and Timpane explore the sorts of legal and ethical issues to which evaluators of health education programs must attend.

(31) Scriven, M. Prose and cons about goal-free evaluation. Evaluation Comment, 1972, 3, 1-4.

In this essay Scriven offers goal-free evaluation as an antidote to excessive preoccupation with the program staff's expressed objectives. Scriven argues that evaluators should attend to the results produced by a program, not the rhetoric of its program goals.

(32) Scriven, M. The methodology of evaluation. In R.E. Stake and others (Eds.), Perspectives on curriculum evaluation. Chicago: Rand McNally, 1967.

This seminal article was the first essay in which Scriven distinguished between the new commonly accepted formative and summative roles of evaluators. Scriven ranges over a wide variety of topics, emphasizing the importance of comparative appraisals of two or more programs' merits.

(33) Siegel, S. Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill, 1956.

This is the classic treatment of nonparametric statistical techniques. Although a bit out of date these days, Siegel's text offers the most easily understood treatment of nonparametric statistical procedures. Because of the author's admitted zealousness in support of nonparametric techniques, those using Siegel's text should also consult a critique of it by Robert Savage, Journal of American Statistical Association, 52 (September 1957): 331-344.

(34) Suchman, E.A. Evaluative research: principles and practice in public service and social action programs. New York: Russell Sage Foundation, 1967.

In this volume, Suchman provides extensive coverage of the application of the experimental research model in conducting evaluations. Although evaluation has come a long way since this book was written, it provides a clear description of the predominant conceptualization of evaluation in the past decade.

(35) Tukey, J.W. Exploratory data analyses. Reading, Mass.: Addison-Wesley, 1977.

Creative approaches to displaying and understanding data are provided by Tukey in this excellent demystification of data analysis.

(36) Webb, E.J., Campbell, D.T., Schwartz, R.D., Sechrest, L., & Grove, J.B. Nonreactive measures in the social sciences (2nd ed.). Dallas: Houghton Mifflin, 1981.

This charming volume provides readers with a series of powerful and clever tactics to secure data, particularly of an affective nature, without sensitizing respondents to the evaluator's purposes.

(37) Weiss, C.H. Evaluation research: methods of assessing program effectiveness. Englewood Cliffs, N.J.: Prentice Hall, 1972.

Weiss offers a pithy overview of prominent program evaluation considerations including the formulation of questions to be addressed, the design of the evaluation study, and the utilization of evaluation results. A paperback, this brief book (160 pp.) offers an excellent introduction to what Weiss refers to as "evaluation research."

(38) Worthen, B.R., & Sanders, J.R. Educational evaluation: theory and practice. Worthington, Ohio: C.A. Jones, 1973.

This volume was one of the earliest compilations of various program evaluation models applied to education. Included in the evaluation theorists whose views are presented in this book are Stake, Cronbach, Scirven, Tyler and others. Worthen and Sanders have authored sections of the book and have included a series of original chapters by a number of evaluation specialists. While focused on educational evaluation, in general, the volume is of substantial relevance to program evaluation of health education programs.

(39) Zdep, S.M., & Rhodes, I.N. Making the randomized response technique work. (Reprinted from The Public Opinion Quarterly, Winter 1976-1977, 41.)

This easily read essay describes the randomized response technique, a procedure used to obtain sensitive information from respondents more accurately than if respondents were directly asked about sensitive information.

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